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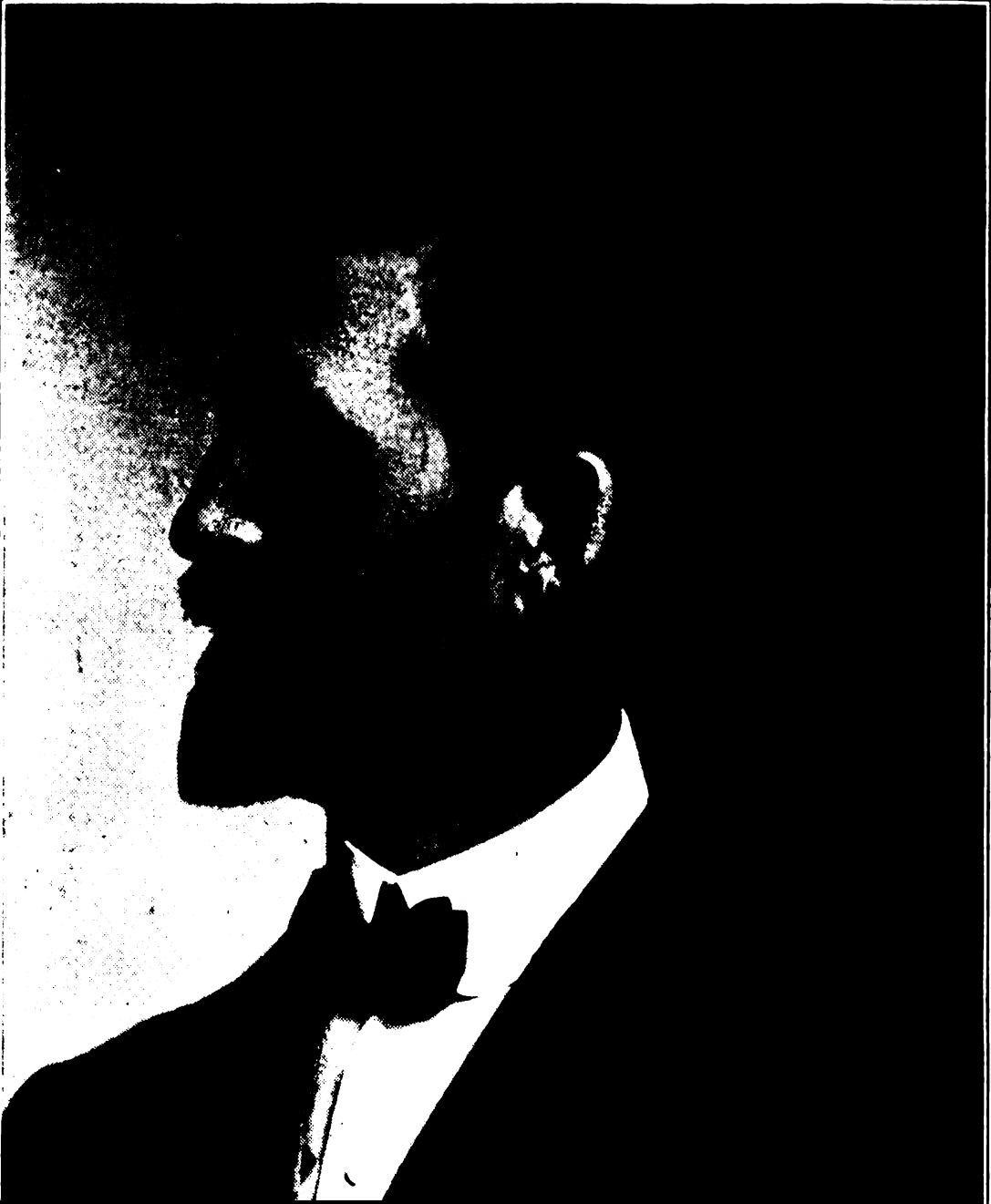

Synopsis of the section Apus of the genus Polyporus

Curtis Gates Lloyd

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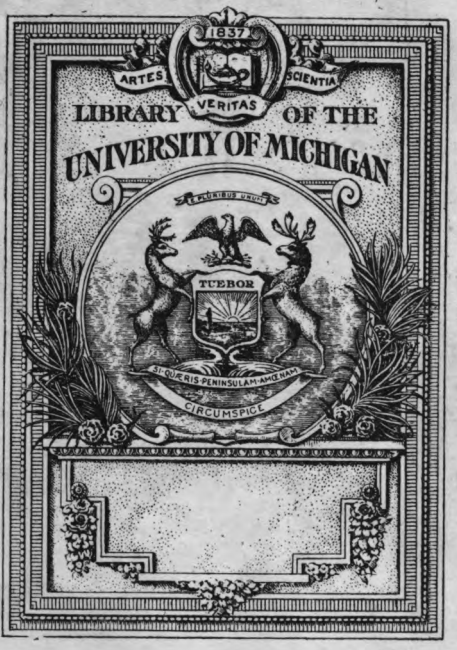

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SYNOPSIS

OF THE

SECTION APUS

OF THE

GENUS POLYPORUS

By

C. G. LLOYD.

CINCINNATI, OHIO, - JUNE, 1915.

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WILLIAM ALPHONSO MURRILL.

You can travel the museums of the world over and you will not meet a pleasanter, more affable gentleman than W. A. Murrill, assistant director of the New York Botanical Garden, in charge of the mycological department. Together we have enjoyed several visits, and I am much pleased to be able to publish his photograph in our series of prominent mycologists. It is quite appropriate to include it in this pamphlet, as Mr. Murrill first came into prominence through his publication on the Polyporus.

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THE GENUS POLYPORUS.

In the olden days all fungi with small pores were called Boletus. Persoon divided them into two sections. First. The fleshy species with pores easily separable from the pileus, which constitute the genus Boletus as known at the present time. Second. Those with the pores continuous with the context of the pileus. The latter section was called Polyporus by Fries, which was accepted by Persoon and generally used from the appearance of Fries' Systema up to the publication of the sixth volume of Saccardo's Sylloge (1888).

Fries in his Novae Symbolae (1851) proposed four main divisions of these plants, viz:

Fomes—Perennial, pores in strata.
Polyporus—Fleshy annuals.
Polystictus—Coriaceous annuals.
Poria—Resupinate.

Cooke attempted (a very poor attempt) to arrange the species under these four heads, as genera, and Saccardo adopted Cooke's arrangement. Since the appearance of Saccardo, these four genera have been generally adopted by writers on the subject, and for practical purposes, are about as good for a general division as can be devised.

Beginning with Karsten, 1881, and ending, it is to be hoped, with Murrill in the past few years, several have amused themselves (and others) by proposing innumerable "new genera," based chiefly on the old sections and subsections of the Friesian system, getting up all kinds of excuses to give them new names and add their own names to each species as the "authority." As it is very rarely that any of these proposed changes have been based on a new principle of classification, and as they have only added to the confusion with a jargon of new names, mycologists as a usual thing, have honored such work by ignoring it. Personally, I do not consider it of enough importance to cite in detail even as synonyms.

The genus Polyporus, in the sense as intended in Saccardo and found in this pamphlet, consists of soft, fleshy species, annuals, excepting in the tropics. The distinction between Polyporus and Polystictus, which Fries evidently had in mind, is that when growing, Polyporus is soft and fleshy, and usually moist, and becomes brittle when dried, while Polystictus has dry, coriaceous or leathery textures when growing. It is not always easy to decide on these characters especially from dried specimens, and in practice the thick (or rarely thin) species that dry brittle are called Polyporus, while the thin, flexible species are called Polystictus. We have considered the species of Polyporus under two general heads. First: those with a stipe which we published in a previous pamphlet, The Stipitate Polyporoids, and, second: the sessile species, included in this pamphlet.

The history of Polyporus species is the general history of mycology. In Europe, Persoon and Fries defined the most of the species, and the greater part of them are taken in the sense of these authors. Most of the species can be easily and definitely traced back to these authors, but in the section of white species it is very difficult to decide from the scanty and often conflicting evidence what particular species they had in view. Two men, in recent years in Europe, Bresadola and Romell, have given critical studies of the history and identity of the Friesian species. We have endeavored to learn the views of these men, as well as to hunt up and study all the evidence that exists, and to form our own conclusions. That they are not always in accord is unfortunate, but unavoidable. These differences will always exist, as long as each author feels that it devolves on him to take names in their original meaning, for in a number of cases investigators will arrive at different conclusions.

In the United States the early work was done by Schweinitz, who proposed as "new species" everything he did not determine (or misdetermine) as being European. He got the cream of the valid, endemic species, and would no doubt

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have gotten more, had he in all cases left specimens from which his species could be decided. The next work by Berkeley, through Curtis and Ravenel, established a tradition about American species which was mainly pursued by the following generation, Peck, Ellis and Morgan. Most of it was correct, but in some cases American names were used for plants of Europe, the identity of which was unknown to Berkeley. In quite recent years Murrill has published much. He has proposed so many new names and made so much confusion that no one pays much attention to them. At the present time young Overholts is doing much better work on the subject.

As to foreign species it is the same old story. Collections drift into Europe and the largest part are discovered to be "new species" "described" and "named," scraped up and embalmed in pidgin Latin in Saccardo. As the descriptions usually tell nothing, and not one out of a hundred can be determined with any probability of truth, the embalming process in Saccardo is the last that is ever heard as to most of them. When the specimens are preserved in accessible museums, we have hunted them up and studied them, and have adopted the names for those that we think have merit. The naming of "new species" in Europe, however, in the past, appeals to me as very much of a hit-and-miss affair. In my belief, Bresadola is the only one who has indulged in this pastime who has made any serious endeavor to learn the identity of the "old species."

Berkeley named the most of the foreign species, and there are relatively few that are at all common that did not at some time drift in to him. As his herbarium has been well preserved, Berkeley's names may be had for most of the common species. The species of Europe and the United States are, I believe, all named (or multinamed), excepting perhaps a few, rare ones in the outskirts of Eastern Europe or Western United States. As to foreign ones, the common ones are named, but there is an embarrassingly large number of rarer collections that I receive from foreign countries, particularly from Japan, that I am unable to identify with any named specimen that I have found in the museums. Some of them have been published in this pamphlet, but most of them remain unnamed in our collection.

We have divided the genus Polyporus into five general divisions following closely the lines used in dividing the genus Fomes, and basing the general divisions on color features of the context, pores and spores. The spores of the various species are recorded as we measure them, and are intended only to give an idea of shape and size. They vary a few microns in size on the same slide, and our measurements are of the largest spores that we note. In all the colored spored species and in most of the soft, fleshy, white spored species, the spores are usually in abundance. Where spores are not found it is generally in species of a hard, dry texture.

As in most groups of fungi, even the Agarics, the hymenium of some species is characterized by the presence of deeply colored setae, corresponding to those found in the Thelephoraceae and forming there the "genus" Hymenochaete. Ellis proposed a "new genus" based on them, but no one ever followed him, as those who work with Polyporus, do not take setae so seriously as those who work on Thelephoraceae. A few species have large hyaline, many celled "cystidia" on the hymenium. No one has proposed a "new genus" based on these "cystidia" in Polyporus, although it has been done when they occur in Hexagona. Other species have deeply colored setae-like hyphae imbedded in the tissue, similar to those found in Fomes pachyphloeus (cfr. Fomes Synopsis, p. 261), and forming the genus "Oxyuris" for McGinty. I have not heard whether he proposed to make a "new genus" for these species in Polyporus or to include them in his Fomes genus.

When definite color terms are used in this pamphlet, they are taken from Ridgway's Standard, and the same remarks are applicable under this head as in the preface of our Fomes pamphlet.

I have worked several years trying to get the straight of the species of Polyporus, and there has not been much trouble excepting in connection with the white species. Some in this section, viz., chioneus, trabeus, lacteus, destructor, albidus, etc., are not as clear to me yet as I wish they were. We have in our museum abundant specimens, particularly from the United States, more in number perhaps than in all other museums combined, and we extend our thanks to our many correspondents who have aided us with specimens. It is only by constantly handling specimens that one gets thoroughly familiar with them and their characters. We have worked over the specimens in all the principal museums of Europe and the United States, and acknowledge our indebtedness to the various curators of these museums for every courtesy in the work.

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This pamphlet is intended chiefly as an arrangement of the species, but we have given notes of the distinctive characters, history and distribution, which we hope will enable others to identify the plants they meet. At the same time we believe that species can only be learned from specimens, and that the simplest way is to send the specimens and have them named, and with the name known, one can read up and learn the characters and the species much easier than to try to work out their names first. I thought when I wrote the Stipitate Polyporoids it would be practical for collectors to name their stipitate species from it, but it seems to me I have since received more misnamed specimens (evidently from the use of this pamphlet) than I did before the pamphlet was issued.

This pamphlet was written about a year ago at Kew, where one has the best facilities for such work, not only the best collection of historical specimens, but the best library, and the most conveniences of every kind. I wish to acknowledge the kindness of Miss E. M. Wakefield for the sketches used in the work and for other aid.

FIRST GENERAL DIVISION.

CONTEXT AND PORES WHITE OR PALE WHEN GROWING. SPORES HYALINE.

We divide them into seven sections, as follows:

Pileus with thin but distinct crust ..... Section 80.

Pileus without distinct crust.

Flesh (dry) fragile, crumbly ..... " 81.
Flesh hard, firm ..... " 82.
Very thin plants ..... " 83.
White, turning reddish in drying ..... " 84.
White, turning bluish in drying ..... " 85.
Flesh dry, soft, and cottony ..... " 86.
Flesh dry, light, and spongy ..... " 87.

SECTION 80. CRUST THIN BUT DISTINCT.

It having been overlooked in our previous pamphlet, we include here Polyporus quercinus which in our text books is placed next to Polyporus betulinus. It is a stipitate plant, and should have been placed in Section 12, Petaloides.

A.—Flesh firm but fragile.

POLYPORUS BETULINUS (Fig. 631).—Pileus thick, applanate, obtuse, attached by a reduced base, or a short stipe, usually about 5-6 inches in diameter, 1½ to 2 inches thick. Surface with a smooth, thin, pale, separable crust, at length brown. Flesh white, soft, but not friable. Pores minute, round, white, when dry slightly darker than the context, 4-8 mic. long. Spores oblong, 2½ x 6, hyaline, smooth.

Polyporus betulinus was so well named and figured by Bulliard that there has never been any question about it, and it has been universally known under this name. Of course, we do not count the jugglers who would change it on a technicality. It is very common both in Europe and America on living and dead birch, and on no other host as far as we know. We have seen somewhere a record of its occurring on another host, but we cannot place it. It seems to be replaced in Australia by Polyporus Eucalyptorum, very similar excepting as to spores.

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While it is usually sessile, it is not dimidiate (as Quélet states), for it is really stipitate with a suppressed stipe. Rarely the stipe is developed, and the plant is always attached by a small attachment. The plant starts to grow as a white ball, as shown in our figure 632. When old the pores have a tendency to peel away from the flesh, and the jugglers have made this an excuse for a genus. Compare Polyporus Eucalyptorum in next subsection.

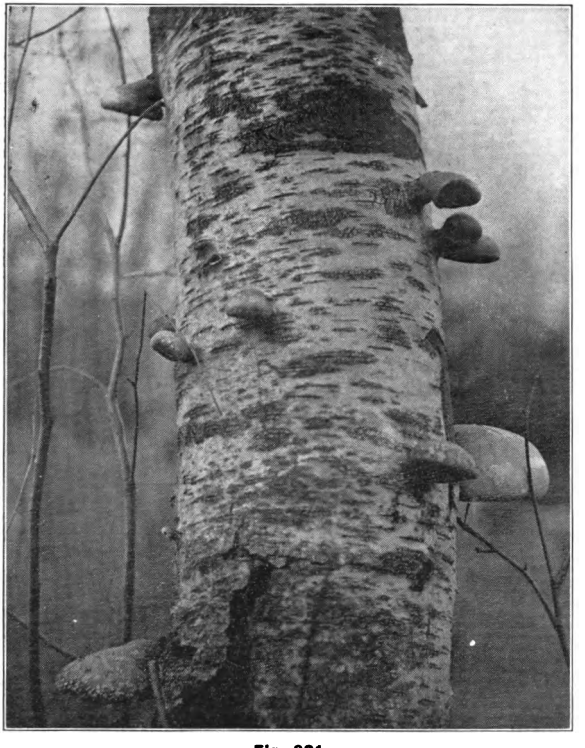

Fig. 631.

Fig. 632.

Polyporus betulinus. Fig. 631 as it grows in natural surroundings. Fig. 632 incipient growth.

ILLUSTRATIONS.—Many, mostly good. Sow, 212; Gillet, etc.; White, Connecticut t. 37 is very characteristic of the plant as it grows. The original Bulliard 312 is fair, but too brown in color.

SPECIMENS.—Many from Europe and United States. (Australian specimens that we have referred here belong to Polyporus Eucalyptorum.)

Compare suberosus.

POLYPORUS ALBELLUS.—Pileus dimidiate, sessile, usually 1½-2 inches in diameter, often imbricate, but rarely, if ever, subresupinate. Surface smooth, with a very thin crust. Color of surface usually grayish or yellowish, sometimes white. Flesh drying white,

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fragile. Pores small, round, drying slightly alutaceous. Spores allantoid, 1 x 4-5, cylindrical, curved.

This is the most abundant species we have in this section in the United States, on birch usually. It occurs in Europe, but is very rare. When fresh it has a slightly acrid odor. It accords very well with Fries' account of Polyporus chioneus in Myc. Europ., and is so referred by Karsten and Romell. However, it does not accord with description of the original Polyporus chioneus, and the name having been applied to different plants, we adopt Peck's name, which is the only certain one. The surface is smooth, not "anoderm," but the crust is so thin, a section under the microscope is necessary to clearly show it. It is only about 50 mic. thick. Polyporus albellus is distinguished from the plant we call Polyporus trabeus (cfr. page 301) only by its thin crust. They are, no doubt, extreme forms of the same species.

SPECIMENS.—Many from United States. From Romell, Maire, and perhaps one or two others from Europe.

Compare acriculus, palustris.

POLYPORUS PORTENTOSUS.—Pileus usually large, 3-4 inches in diameter, 2-3 inches thick. Surface with a distinct, thin, pale yellowish crust. Flesh pure white, fragile, chalky. Pores minute, pure white.

This is only known from Australia. It is a species quickly destroyed by insects, and the type at Kew is almost gone. We have the only good collection known, which was from Geo. K. Hinsby, Australia. A good account of this species is given in Cooke's Handbook. As to context, it is quite close to Polyporus immaculatus, but readily distinguished by its distinct crust. This is the largest, white Polyporus known. It is recorded as large as ten inches in diameter.

SPECIMENS.—Australia, Geo. K. Hinsby. The only good collection in any museum.

POLYPORUS TEPHRONOTUS.—Pileus dimidiate, thin, 5-6 mm. Surface smooth, with a thin, but distinct crust, slightly yellowish. Flesh white, soft, brittle. Pores very minute, discolored slightly, with a waxy appearance. Spores not found (allantoid?). This is only known from the type at Kew. There are several collections from Australia, and a large portion of them are semiresupinate. The pores remind us much of those of Polyporus semisupinus.

Compare angustus.

POLYPORUS ELATINUS.—Sessile, but attached by a reduced base (4 x 3 x 1 cm.). Surface with a thin but evident crust, smooth, wrinkled in drying, reddish, ochraceous color. Flesh white, firm, 3-5 mm. thick. Pores small, round, slightly discolored (now), with mouths darker, 6-8 mm. long. Spores abundant, subglobose, hyaline, smooth, 6-7 mic., many smaller, 3-4 mic. Known at Kew from good types, India.

POLYPORUS ORINOCENSIS.—Compare our Synopsis Hexagona, page 36. Has small pores, but is so closely related to the large-pored species (Hexagona cucullata) that we figured it in connection with that species. It is known from but one collection from South America, at Paris, and is probably only a small-pored form of Hexagona cucullata. If ever found again, it might be sought in this section of Polyporus.

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POLYPORUS PELLICULOSUS (Figs. 633 and 634).—Pileus sessile (3-4 x ½ x 1½ cm.), with a thin, closely adnate, black crust, beset with scattered, short, erect, black spicules which are of the nature of clusters of tomentum. Flesh white, 1 cm. thick, soft (now), but not fragile. Pores (now) darker than the flesh, but probably white when fresh, small, collapsed in drying, ½ cm. long, separated from the flesh by a dark line. Spores in great abundance, hyaline, small, 5 x 7, many smaller.

Fig. 633.

Fig. 634.

Polyporus pelliculosus.

Known at Kew scantily from Australian collections. The crust, of course, is quite different, but the flesh and pores, and the way they dry, their colors, and the abundant spores, all recall Polyporus spumeus. Polyporus spiculifera (Fig. 634) is a thin form with the tomentum collected into very distinct nodules.

Compare spiculifera.

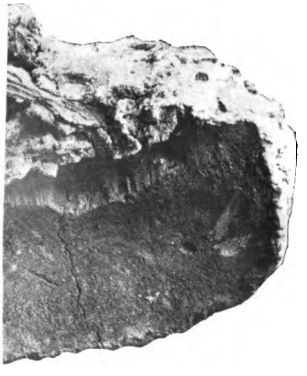

Fig. 635.

Polyporus flavescens.

POLYPORUS FLAVESCENS (Fig. 635).—Pileus ungulate (4 x 6 x 3 cm.), sessile, with a thin, reddish yellow, smooth, papery crust, resembling to some extent the usual Ganodermus crust as to

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color. Context white, or pale, firm. Pores small, round, pale, discolored, probably in drying. Spores globose, white, 4-5 mic., tubercular, rough.

There are but few polypores known with rough, white spores—only one other, we believe, in this pamphlet—although there is a section of stipitate polypores (Section 27 of Merismus) with echinulate spores, and one species in Ovinus. Only two collections have reached Europe, first from Brazil—a single specimen which Montagne named as above—and then a collection from Cuba which was composed of smaller, thinner specimens. Berkeley called the latter Polyporus albogilvus. The plant does not occur in the abundant material from the West Indies in the New York Garden.

Compare albogilvus.

B.—Flesh soft, spongy.

(We include here Polyporus quercinus which should have gone with the Stipitate species.)

Fig. 636.

Polyporus Eucalyptorum.

POLYPORUS EUCALYPTORUM (Fig. 636).—Pileus ungulate (or thick, applanate), 3-5 inches in diameter. Crust thin, smooth, pale,

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at length dark, easily separating. Context very soft, white, spongy, crumbly, fragile. Pores medium, round, white, fragile, 6-12 mm. long. Spores abundant, 8-10 mic., many smaller, subglobose, with granular or guttulate contents.

No type exists of this, but we take it in from the description and specimens to which it applies, of which there are several collections in the museums of Europe. Cooke misdescribed it under the name Polyporus leucocreas. Fries' plant was described from Australia, on Eucalyptus, but there are collections from New Zealand, and one from New Caledonia. A marked feature of the plant is the very soft, crumbly flesh, described by Cooke as "suberose, firm and tough" (sic), which is exactly the contrary of its nature. When fresh, the flesh was said to be "snow-white." Now the specimens are often discolored, and dark isabelline. The crust was described by Fries as dark, and so it is on several specimens we have seen; but on Polyporus spermolepidis, which we take to be same species, it is white. We think the dark crust is a change due to age and exposure.

Polyporus Eucalyptorum is the Australian analogue of Polyporus betulinus, and so similar that we misnamed it, on receipt of the three collections that we have from Australia. The flesh is usually much softer and more fragile, the shape more ungulate; but neither of these two features can be depended on. We have specimens of the two species that cannot be distinguished by the eye. The spores, always abundant in Polyporus Eucalyptorum, are of a different type entirely.

SPECIMENS.—Australia, Edmund Jarvis, J. T. Paul, Rev. James Wilson. All were referred to Polyporus betulinus when received.

Compare caseicarnis, hololeucus, leucocreas, spermolepidis.

POLYPORUS QUERCINUS.—Pileus stipitate, with stem 2 cm. thick, 3 to 7 cm. long. Pileus spathulate, 5-8 cm. wide, 1½-2 cm. thick. Surface smooth, with a very thin, yellowish crust, turning brown when dried. Flesh white, soft, drying light and spongy. Pores small, round, the mouths pure white when untouched, but very sensitive and bruising reddish. In dried specimens the pores become almost black. Spores large, obovate, 5 x 12 mic., with granular contents.

This is a very rare species on oak in Europe, and is quite scantily represented in the museums. We were fortunate enough to find a specimen at Fontainbleau one season, but we have never gotten it from a correspondent. All who find it speak of its rarity. Mrs. Hussey was the first and only one, as far as we know, to find it in England. Her specimen only is at Kew. There is a specimen from Plowright at Berlin. These three specimens are all that we have noted. Although Fries records having found it (rarely), his description was probably drawn from Krombholtz's figure, for he records the pileus as "suberose," "soft then indurated," while the flesh of the dried specimen is very light and spongy. Several have likened the

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plant to Fistulina hepatica, but the resemblance is not very close. Mrs. Hussey states the flesh is intensely bitter.

Although Fries places Polyporus quercinus in Section Apus, it always has a stem, and should have been included in my pamphlet on Stipitate Polyporoids. In my specimen the stem is two inches long. A stem is shown on every figure that exists.

ILLUSTRATIONS.—Krombholtz t. 5, f. 3 and 5, and t. 48, f. 11-14; Hussey Ser. 1, t. 52; Boudier, t. 154. All are good, but Boudier's figure is, of course, the best. The pore mouths, however, naturally are white, but when handled or old they become the color of Boudier's figure, which, as to the pore mouths, was evidently drawn from a discolored specimen.

Compare fusco-pellis.

SECTION 81. CONTEXT AND PORES WHITE, OR PALE, FLESH FRAGILE, CRUMBLY.

(Sections 81 to 87 have no distinct crust.)

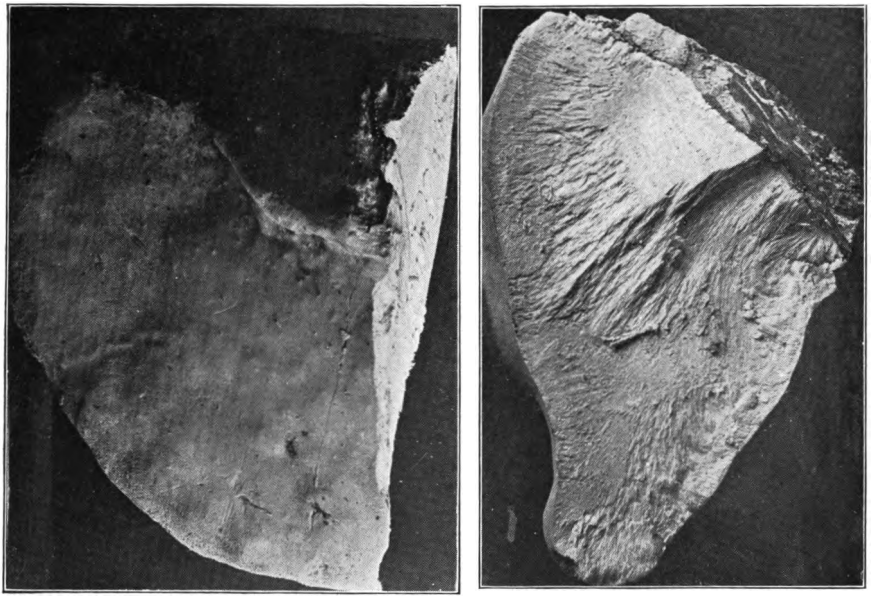

Fig. 637.

Polyporus immaculatus.

POLYPORUS IMMACULATUS (Fig. 637).—Pileus triquetrous, usually thick, an inch or more. Surface white, dull, smooth, anoderm, fragile. Context soft, white, fragile, crumbly. Pores minute, round, white. Spores 1 x 5, allantoid, cylindrical, curved.

This is a tropical species, both of the American and Eastern tropics. It is found in Cuba, South America, Africa, New Guinea, and Philippines. The entire plant is pure white, and reminds one of

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a piece of chalk. It has several names. Berkeley called it Polyporus immaculatus, verecundus (?), and Trametes pura; Hennings, Polyporus gogolensis (which fortunately does not have to be used); and Murrill, Polyporus unguliformis.

SPECIMENS.—Madagascar, Henri Perrier de la Bathie.

Compare gogolensis, pura, unguliformis, verecundus.

POLYPORUS LEUCOMALLUS.—This is a tropical species, very close to Polyporus immaculatus in texture and color, being pure white. It is known only from one specimen at Kew, from Cuba, rather thin, 1½ cm. in diameter. The surface has distinct, appressed, pale hairs by which it can readily be told from Polyporus immaculatus, with which it has been confused.

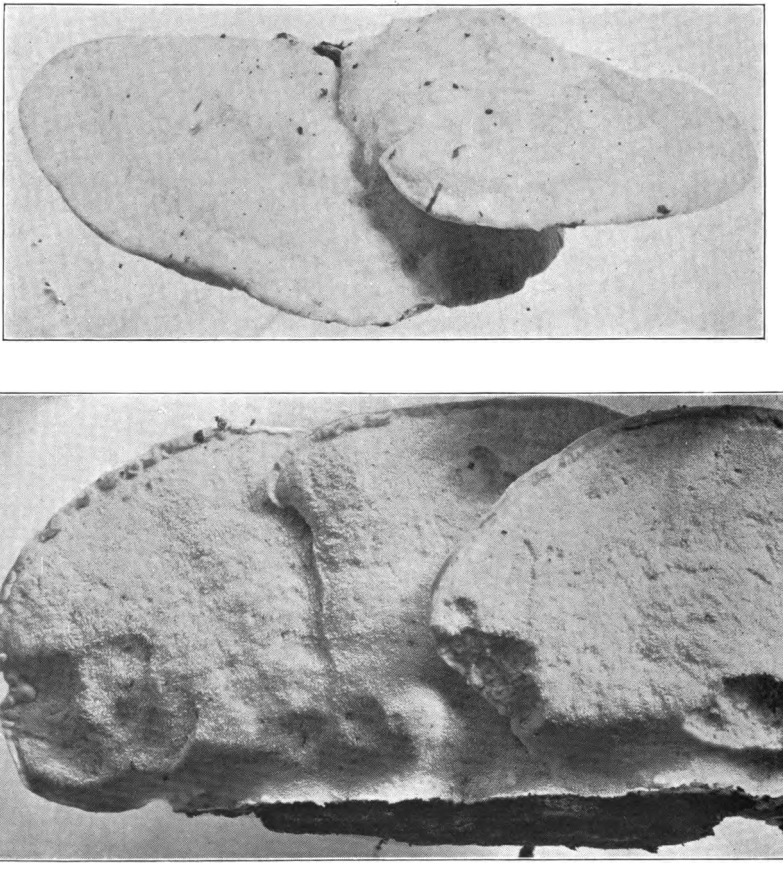

Fig. 638

Polyporus trabeus

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POLYPORUS TRABEUS (Fig. 638).—Pileus dimidiate, sessile, triquetrous. Surface anoderm, smooth, dull, soft, minute, pubescent. Flesh white, soft, crumbly. Pores small, round, regular. Spores allantoid, 1 x 4-5, cylindrical, curved.

No white species has given me more trouble to name satisfactorily than has this common, white plant. Polyporus trabeus is our latest decision, and in deciding on this name we are influenced mainly by two facts. The plant is well represented in Sturm, fasc. 10, fig. 28, which Fries cites; and it is a common plant, and Fries records it as common. It is strange that Polyporus trabeus, which Fries states is "frequent," should have practically passed out of current mycology. Bresadola calls the plant Polyporus lacteus, and while we accepted it under protest (cfr. Note 158, Letter 49), we have never been satisfied with it. Romell, in his latest work, and Murrill, take lacteus in the sense of Bresadola. In my belief it neither agrees with Polyporus lacteus as to Fries' description, his figure, nor his (poor) specimen at Kew, nor with his record of the species, in which he states it is "rare."

Polyporus trabeus is a very common plant, both in the United States and Europe. It is very close to Polyporus albellus (see page 294), and has the same pores and spores, but the surface has no cuticular appearance, and is softer, hence we put them in different sections, though we have many intermediate specimens which are hard to refer.

ILLUSTRATIONS.—Sturm, fasc. 10, t. 28 very good. There is a slight pinkish cast that is a little misleading, but the figure, to me, is characteristic. Mez' figure cited is a copy from Sturm, and Britzelmayr is not worth considering. Patouillard t. 244 (as lacteus) represents the plant except the flesh zone, which I have never noted.

SPECIMENS.—Many from United States, and Europe, mostly referred to Polyporus lacteus when received, also two collections (Nos. 82 and 221) from A. Yasuda, Japan, which were referred to Polyporus albellus when received.

POLYPORUS TEPHROLEUCUS.—Pileus fleshy, drying fragile, applanate, imbricate. Surface smooth, dull, pale grey. Pores small, round, ½-1 cm. long, drying white. Spores 1-1½ x 4-5, allantoid, slightly curved.

This is a fairly frequent species in Europe, and occurs also in America. It is readily known by having white flesh and pores which persist white, but the pileus surface is grey or dark. Fries characterized it by villose, grey pileus and flesh at first subgelatinous. We collected once in Sweden a single specimen that when fresh answers this description, but the usual dry collections we have do not show them. We have gathered it on oak in France and birch in Sweden. Fries states it grows on pine and beech. Quélet records it only on pine.

ILLUSTRATIONS.—Sturm's Flora, fasc. 10, fig. 26 (good).

SPECIMENS.—Many, both from Europe and United States.

POLYPORUS ALUTACEUS.—Pileus dimidiate, ½-1 cm. thick, with rough, usually pale yellowish surface, sometimes spotted. Flesh white, soft, friable. Pores minute, round, slightly alutaceous in drying. Spores 2 x 3-4 mic.

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This species grows on pine and is rather rare both in Europe and the United States. The European plant, as named by Bresadola, appears to me to accord with Fries' description and the figure that he cites. The American plant was called, by Peck, Polyporus maculatus, then changed to Polyporus guttulatus. On comparison, it is the same as European material. The spores are relatively thicker than most allied species.

ILLUSTRATIONS.—Sturm's Flora, fasc. 10, t. 30 (as epixanthus). It is only fairly good.

SPECIMENS.—Three from Michigan. One from New York, one from Europe.

Compare guttulatus, maculatus, testaceus, tiliophila.

Fig. 639.
Polyporus Tokyoensis.

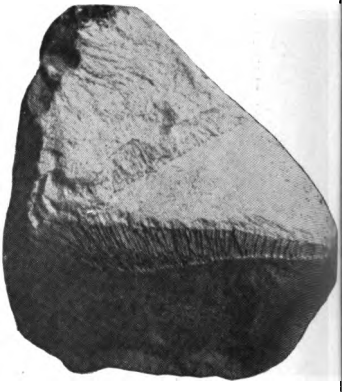

Fig. 640.
Polyporus cretaceus

POLYPORUS TOKYOENSIS (Fig. 639).—Pileus applanate or ungulate, 1-2 cm. thick, sessile. Surface dull, friable, white. Context white, very friable, fragile. Pores small, pale greyish, probably discolored in drying. Spores 1 x 5, allantoid, hyaline, smooth.

Based on a collection from S. Kawamura, Japan (No. 29). It is same as Polyporus immaculatus, excepting the different pore color, which is white in immaculatus. It is similar to Polyporus caesius as to color of dried specimen, but has small pores.

POLYPORUS CRETACEUS (Fig. 640).—Pileus ungulate (3 x 3 x 5 cm.), sessile, dimidiate. Surface dull, fragile, no distinct crust, pale greyish alutaceous. Flesh thick, pure white, very soft and fragile like chalk. Pores isabelline, small, round, irregular, 4-5 mm. long, contrasting with the pure white flesh. Spores large, 6 x 10 mic., piriform, guttulate, hyaline, smooth.

This is based on a specimen, donor unknown, from Tasmania. It evidently grew on charred wood. The soft, friable, pure white flesh

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reminds one of Polyporus immaculatus, but the discolored pores, tissue, and the spores differ strongly. There are four of these large species with soft, friable, white context in Australasia, cretaceus and immaculatus without crust, and portentosus and Eucalyptorum with distinct crusts.

Compare caesio-flavus.

POLYPORUS DESTRUCTOR.—Pileus effuso-reflexed, watery, fleshy, drying soft and brittle. Pores small, round, fragile, white, drying discolored brownish. Spores elliptical, 3-3½ x 4-5.

Although according to reputation and name this is a characteristic disease of house timber, said to soften and destroy the wood in the manner of Merulius lacrymans, I think it is the victim of a bad name and reputation. Schraeder started the story in 1794, and the reputation has been current in our books to this day. It is so rare that it can do little harm even if it is true. Hartig, who wrote the principal work on fungi that destroy wood, does not mention it. Mez recently has given a good account of this rare species, which he states he found but twice. The only collection I have is from Erik Haglund, Sweden. The main difference, by which the plant can be told from similar species, is the discoloring of the dried pores.

ILLUSTRATIONS.—Krombholz t. 5, fig. 8, cited by Fries, is the color of the dried pores, not the pileus or flesh, which are white. I think, also, the pores are probably white when fresh. Mez' fig. 42 is a photograph showing habits of the plant. Sturm fasc. 10, t. 27, is doubtful to me.

SPECIMENS.—Only one collection from Erik Haglund, Sweden, and that broken in pieces.

POLYPORUS MINUSCULUS.—Boudier gives an excellent description and figure of this little species found in a hot house in France, and no doubt exotic. It is very small, only 1-3 mm. in diameter, pendant, affixed by a small attachment. The little specimens each consist of a few long, rather large, tubes. Spores are globose, 4-6 mic., apiculate, guttulate. The little plant is hardly analagous to any other known species. (Cfr. Bull, Soc. Myc. France, 1902, p. 141, pl. 6, fig. 3.) It has never been refound.

POLYPORUS KMETII is a rare plant in Europe, known to none but the author. It has white flesh, hyaline spores, 2½ x 4 mic., orange surface, covered with dentate processes, and would be most easily recognized if ever met again. It grew on oak in Hungary. We have seen no specimens.

SECTION 82. CONTEXT AND PORES WHITE OR PALE. FLESH DRYING HARD, FIRM.

A.—Surface anoderm, or pubescent with projecting hyphae.

POLYPORUS ALBIDUS.—Pileus white, dry, hard, with a dull but smooth surface, no distinct crust. Flesh white, hard, unchangeable. Pores round at first, at length sinuate, and splitting. Spores 3 x 5, hyaline, smooth.

This seems a frequent species in Europe, on Abies usually. The pilei are often 3-4 inches in diameter, 1-2 inches thick, and sometimes subapplanate. The flesh is said to be dry from the beginning, not soft

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and watery, as are most species in this section. We take Polyporus albidus in the sense of Bresadola, who seems to take it in the sense of Schroeter, who says he takes it in the sense of Trog. It is not in the sense of Fries I judge from the description, but the picture Schaeffer t. 124, which Fries cites as good, seems to be the plant. We have a number of collections of Polyporus albidus from Europe, but few from the United States, where it is mostly southern.

I have seen many French determinations of this plant as Polyporus stipticus (surely not Persoon), and it is Polyporus palustris for Mr. Murrill (not Berkeley).

ILLUSTRATIONS.—Schaeffer 124 seems to be the plant, although most of the specimens are too thin.

SPECIMENS.—A number, from Europe mostly. New York, S. H. Burnham; Louisiana, E. Bartholomew.

Compare anceps, palustris.

POLYPORUS MARIANI (bis). Pileus dimidiate, imbricate, with a dull, white surface. Flesh white, hard. Pores white, medium, round, or elongated. Spores (B) 2-2½ x 5-8.

This is a white species, described from specimens on the live oak in Italy. It is only known from the originals. It appears to us very close to Polyporus albidus except as to host. The entire plant remains white in drying.

ILLUSTRATIONS.—Gior. Bot. Ital., vol. 7, t. 11.

SPECIMENS.—Cotype from Rev. Bresadola.

Fig. 641.

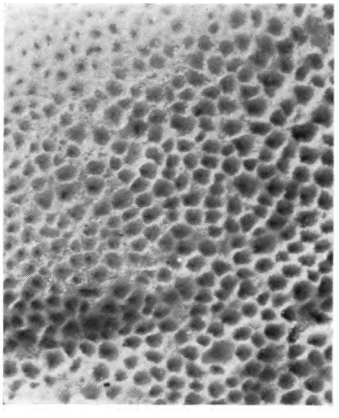

Fig. 642.

Polyporus spumeus. Fig. 641 surface fibrils (X6). Fig. 642, pores (X6).

POLYPORUS SPUMEUS.—Pileus pure white, discoloring in drying. Surface (Fig. 641) floccose, with loose, incised fibrils. Flesh pure white. When growing, soft, but becoming hard and discolored in drying. Pores (Fig. 642) small, round, with uneven edges, white,

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drying discolored and agglutinate. Spores ovate, or subglobose, hyaline, transparent, smooth, 6-7 mic., with large guttae.

European mycologists agree on Polyporus spumeus in the sense of Fries at least. It is evidently a heart rot, and always comes from decayed portions of living trees. In the park at Upsala it prefers the maples; rarely we found it on poplar. It has never been observed by me on elm, where Sowerby and Fries record it. In America, in the East, it seems frequent on apple trees, and is one of the few fungi that infect the apple tree stems. We have never collected it out West, but have specimens. Fries refers it to Sowerby's figure (t. 211), and, from Sowerby's remarks rather than from his figure, we think correctly. It first appears as a soft, white, rounded or amorphous mass, but it is not strictly correct to state that "it oozes as a soft, frothy mass."

The spores, each with a large gutta, are characteristic, also the incised, floccose surface such as shown in our figure 641, which disappears in dried specimens. The pores and flesh both discolor in drying, the pores slightly darker than the flesh.

SPECIMENS.—A number from Europe and three thick forms from United States.

ILLUSTRATIONS.—Two are cited, Sowerby 211 and Berkeley's Outlines, t. 16, fig. 4. Neither well represent the plant, showing dark surface and tubes. The noticeable feature of the fresh, growing plant is that it is pure white.

Compare mollissimus.

VAR. MALICOLUS.—The usual American form of Polyporus spumeus is thinner than the European plant and usually grows on the apple tree. The flesh is usually less than 2 mm. thick, and the spores are smaller, measuring 4-5 mic. Otherwise it is the same as European plant as to color, surface, appearance, pores and peculiar, guttulate spores. It is the white species that occurs on the apple tree in New England. It occurs less frequently further west, and on other hosts. It is the basis of Polyporus galactinus of Murrill's work, a mistake, however, for it is quite different from the true Polyporus galactinus.

SPECIMENS.—We have twenty collections from the United States, mostly from the New England States, and a number where apple is stated to be the host, a few on chestnut. We do not know this thin form in Europe. We have also three American collections with thick flesh corresponding to the plant in Europe.

POLYPORUS SPRAGUEI.—Pileus when growing, white, but dried specimens are dirty white, or cinereous. Surface hard, rough, uneven, with no distinct crust. Flesh white, drying white, hard, firm, rigid. Pores small, round or angular, white, drying discolored, cinereous. Spores subglobose hyaline, 4-5 mic.

This is a rather frequent plant in the United States, and when fresh is decidedly malodorous. It sometimes occurs in abundance on beech, around Cincinnati, and is quite large—a foot or more in diameter. We have only found it on beech, but Murrill records it on oak and chestnut. For years the plant was in our collection as Polyporus foetidus, as we could get no name for it, every one to whom we sent it calling it a different name. It is Polyporus epileucus of Morgan's flora. Murrill was the first man to get it right in the United States, and we first learned it from specimens that he had named. We after-

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ward confirmed it at Kew, where the type is in good condition. The species is unknown to us from Europe.

SPECIMENS.—Many from United States.

Compare sordidus.

Fig. 643.

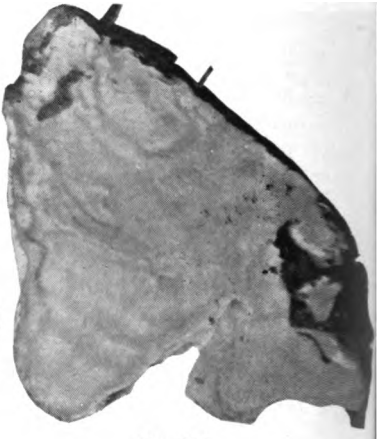

Fig. 644.

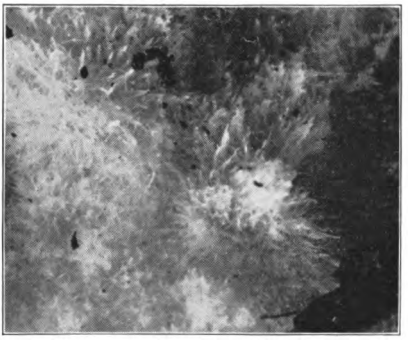

Fig. 645.

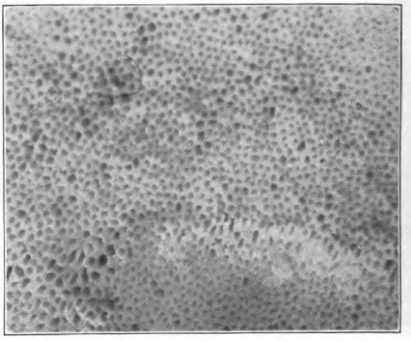

Fig. 646.

Polyporus galactinus. Fig. 643, upper surface. Fig. 644, section. Fig. 645, fibrils (X6). Fig. 646, pores (X6).

POLYPORUS GALACTINUS (Fig. 643).—Pileus sessile, 3 x 4 x 1 inches, hygrophanous when growing. When wet, grey; when dry, white. Edge thin. Surface snow-white, and pubescent (Fig. 645 X6) when dry; when wet, grey, and pubescence does not show. Flesh soft, firm when fresh, zonate in drying. Pores (Fig. 646 X6) minute, round. Spores subglobose, 3½ to 4 mic., guttulate.

This is our most frequent, white species around Cincinnati, growing late in the season on very rotten logs. It is quite hygrophanous. It is similar to Polyporus spumeus excepting in habits, and has much

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smaller spores (compare Note 147, Letter 49). We do not know this species in Europe. The flesh dries hard and contracts much in drying.

SPECIMENS.—Mostly our own collection, it being our most common, white species around Cincinnati.

POLYPORUS CALKINSII.—Pileus usually applanate, sometimes ungulate, varying from one to four centimeters thick. Surface smooth (or slightly rough), but with no distinct crust; ochraceous in dried specimens. Flesh white, soft when growing, but drying hard and rigid. Pores very minute, the tissue isabelline, the mouths adustus, drying very hard and rigid. Spores globose, hyaline, 3½-4 mic.

Calkins sent this plant abundantly to Ellis from Florida twenty years ago. Ellis named it Polyporus Calkinsii, but did not publish it. It was published by Murrill, also, as Polyporus Palmarum, Polyporus nivosellus, and Trametes lignea. The latter two are thicker and of different shape, but we believe all have the same essential characters, and appear to us to be the same plant. It is quite a common species in the American tropics and often on palms, but occurs also in the East. We have specimens from Malay, which we referred at first to Polyporus ostreiformis; but the type of ostreiformis is not the same to us.

Compare ligneus, nivosellus, Palmarum.

POLYPORUS OSTREIFORMIS.—Pileus sessile, applanate, about 7-10 mm. thick. Surface rough, dull, greyish, or with adustus spots. Flesh hard, rigid, tough, greyish white. Pores minute, greyish. Spores globose, 4-4½ mic.

This is a species of the East, quite similar to Polyporus Calkinsii of American tropics, but with different surface. The name has little application. It has not much more resemblance to an oyster than it has to a shingle.

SPECIMENS.—Java, Dr. J. van Breda de Haan (compared with type at Kew), Dr. van Leeuwen; also two doubtful collections from Japan.

Compare griseus.

POLYPORUS SUBMURINUS.—Pileus white, slightly cinereous, drying darker (murinus). Surface anoderm, no distinct crust, rough, uneven. Flesh white, drying hard, with a faint cinereous tinge. Pores small, round, drying hard and firm. Spores 3½ x 8, hyaline, straight, smooth, cylindrical.

This is a plant of the American tropics. We have collections which we made in Florida, and which are all we have. It is quite close to Polyporus Spraguei, in fact, liable to be confused with it, but was put in a different genus by its author. It is also quite close to Fomes abruptus of the East.

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POLYPORUS FUMOSUS (Fig. 647).—Pileus thin, smooth, with dull, soft surface. Context, when dry, hard, firm, but brittle; white when fresh, darker when dried. Pores small, round, irregular, white at first, but becoming fuliginous, or dark, in drying. Spores 2½ x 5 mic.

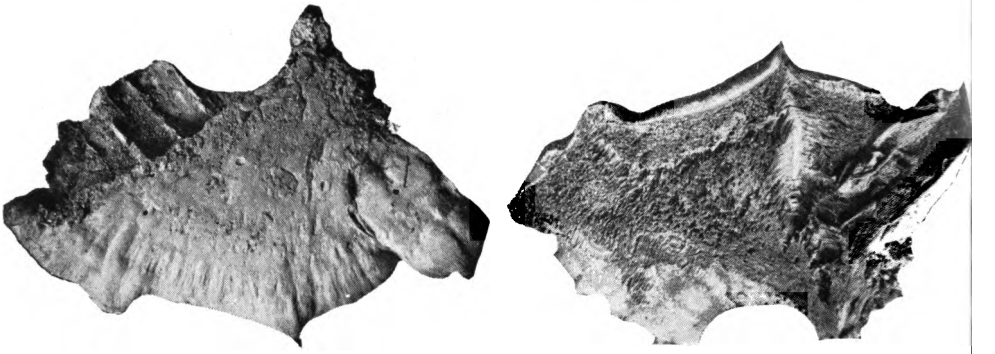

Fig. 647.
Polyporus fumosus.

Polyporus fumosus is quite a frequent plant, usually on willow. It is the same, in fact, as Polyporus salignus, with small pores. When it is in its prime, and growing, it is white; but on drying it turns more or less smoke colored. It is often confused with Polyporus adustus, and many specimens of Polyporus adustus in the museums are labeled as being Polyporus fumosus. Dried specimens may be confused sometimes, but the difference is marked in the fresh plant. Polyporus adustus has deep, smoke colored pores when growing; Polyporus fumosus has white pores, turning smoky in drying, but when dry rarely deep enough in color to be confused with Polyporus adustus. With Polyporus salignus, however, the case is different. It is the same plant as Polyporus fumosus, with larger pores. When growing white, it is usually called Polyporus salignus. In drying or after it turns "smoky" it becomes Polyporus fumosus. When fresh, Polyporus fumosus has a pleasant odor, as noted by Persoon.

Compare apalus, cineratus, demissus, pallescens, pelleporus, rhinocephalus, simulans, subsimulans, terebrans.

POLYPORUS SALIGNUS.—This in the original idea was a white plant growing on willow, the other characters the same, but with large, sinuate pores. In context and color changes it is the same as Polyporus fumosus, and no distinct line can be drawn between it and Polyporus fumosus.

Compare albus, imberbis, puberula.

POLYPORUS HOLMIENSIS (Fig. 648).—Pileus imbricate, thick, subunguliform, hard. Flesh white, with dark lines running through it, also a dark line between the pores and context. Pores and color characters as in Polyporus fumosus, of which it is only a form.

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We do not know in Europe a plant agreeing with Fries' description of Polyporus holmiensis, but we have one very abundant collection made at Albany, New York, on elm. It grew imbricate for a foot or more. When fresh it was white, but in drying takes the characteristic color. It must be a rare form, for Prof. Peck never met it. We have it also from Minnesota.

Fig. 648.

Polyporus holmiensis.

POLYPORUS AMESII.—We have one marked collection of Polyporus fumosus, that agrees exactly with the figure that Klotzsch gives, t. 392, of Polyporus fumosus. The pubescence is stronger than in the usual plant, and the fuliginous pileus is not due to a color change in drying, as ordinarily, but is evidently the natural color of the growing plant. When we received it we matched with Klotzsch's figure and decided that it was the true Polyporus fumosus. We have since, we think, learned Polyporus fumosus better.

SPECIMENS.—Brooklyn, N. Y., Frank H. Ames.

POLYPORUS FRAGRANS.—In the original signification, with large daedaloid pores, this was a fragrant form of Polyporus salignus. All this group of plants, Polyporus fumosus and salignus, and even Polyporus adustus at times, have a fragrant odor, and they are all liable to be named Polyporus "fragrans."

Compare puberula.

POLYPORUS EPILEUCUS (Fig. 649).—Pileus thin, white or alutaceous, drying ochraceous, often with effused base. Surface anoderm, rough. Flesh firm, tough, yellowish in dried specimens. Pores small, round or elongated. Spores 2½ x 5, reniform, hyaline, smooth.

This we believe to be a rare species. We found it on beech at Femsjo, and it appears to correspond fairly well with Fries' description. We only know the plant from a few collections. When fresh it was white, but became yellowish in drying. This plant in Europe has been called Polyporus Hohenialus. We have collected once only, on

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beech, in the United States, a plant that we believe on comparison to be the same species (Fig. 649). We make the spores smaller, 2 x 3½, and the pores were larger, but the dried plants can hardly be told apart. Our American plant was also more alutaceous when fresh.

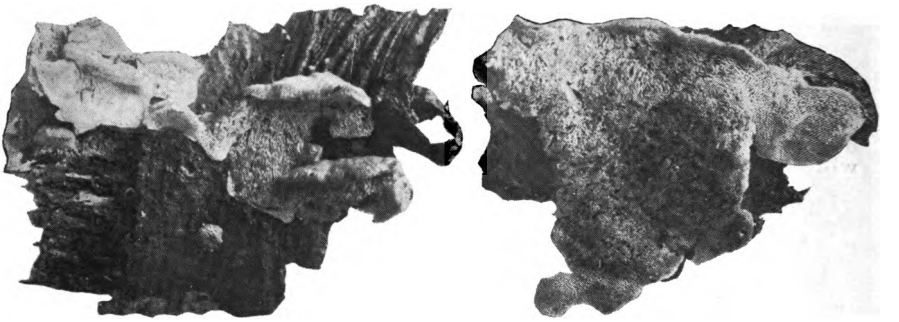

Fig. 649.
Polyporus epileucus.

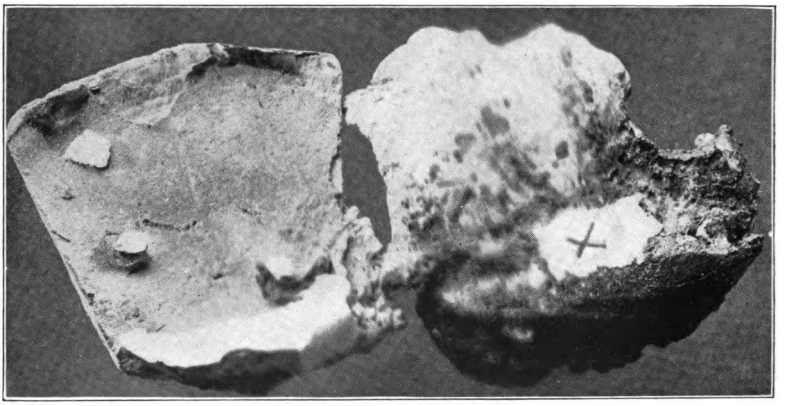

Fig. 650.
Polyporus nivosus.

POLYPORUS NIVOSUS (Fig. 650).—Plant white, with smooth, white surface, no crust. Context hard, firm, white. Pores minute, white. Spores (?) globose, smooth, hyaline, 6-7 mic.

A small plant known to us only from Brazil. It is 2-3 cm. in diameter, 1-2 cm. thick. The entire plant dries white. We have a specimen from Rev. Thiessen, Brazil, which we have compared with the type at Kew and found the same. We question the recent determination from West Indies. There is no indication of any "punky" context in Polyporus nivosus, and the two collections at New York from Cuba are misreferred here.

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NOTE.—We have a collection from Rev. Rick, Brazil, which has been referred to Polyporus nivosus, but which on comparison at Kew seems different. The abundant spores are globose, 3½ mic. irregular. Not found by us in type of Polyporus nivosus. Color of flesh deeper yellow than in nivosus.

POLYPORUS CREMEUS.—This has same color, texture, pores, and abundant cystidia as Fomes connatus (which see in Fomes pamphlet), but the spores are globose, 3½ mic., about one half the size of those of Fomes connatus. It was first referred to a Polyporus form of Fomes connatus, afterwards named in mss. as above. I have several collections from Rev. Rick, Brazil.

POLYPORUS CAESPITOSUS.—Pileus white, sessile, imbricate. Surface dull, no distinct crust. Context hard, white, about 2 mm. thick. Pores minute, white, 1-2 mm. long. Spores (teste author) ovoid, 5 x 7 mic.

The pilei are about 2 x 3 x ⅓ cm., and imbricate (rather than caespitose). The plant is only known from Philippine collections, but why referred to "Trametes" is a mystery to me.

POLYPORUS ELLISIANUS.—Pileus effused, adnate with triquetrous, rigid pileus. Surface uneven, smooth, hard, brown. Context hard, white. Pores small, round, drying darker than the context.

Known from one collection in Ellis' herbarium, which he found on pine. It impressed us as being a good species, although we have but a slight recollection of it.

Compare Polyporus osseus, Stipitate Polyporoids, page 191, fig. 496, which is imbricate, sessile, but has the pileus reduced to a small attachment. It might be sought in this section. Compare also Brenningii and obducens in the synonyms.

B.—Surface strigose with brown hairs.

POLYPORUS SETIGER.—Pileus dimidiate, sessile (3 x 4 x 1 cm.) Surface hispid, with short, brown, strigose hairs. Flesh firm, white, hard. Pores small, soft, fragile, discolored (in drying, no doubt). Spores allantoid, 1 x 4, curved.

In Europe or the United States there is no species similar to this with white flesh and brown, strigose pileus. The types are from New Zealand, at Kew, and only known from one collection. Polyporus atrostrigosus, also from New Zealand, but known from scanty material, is very similar and probably the same species.

Compare atrostrigosus.

The three following divisions differ from the usual type of related plants so much that a "new genus" could be based on each of them.

C.—Spores large, hyaline, truncate, corresponding to "Ganodermus" spores. Fomes Ohiensis is the only other known species with similar spores.

POLYPORUS OCHROLEUCUS (Fig. 651).—Pileus usually well formed, regular, ungulate (3 x 4 x 1½-2 cm.) Surface with indistinct crust, smooth, or more or less appressed, strigose, fibrillose, faint indications of zones. Color usually pale, with a slight ochraceous tint, rarely decidedly yellowish. Context thin, hard; at first pale, in old specimens becoming dark. Pores small, ¼ mm., regular, long,

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minute, rigid. Spores peculiar, oblong, truncate at base, 8 x 16 mic., hyaline.

It is a frequent plant in the East, Australia, Africa, India, Ceylon, etc., but does not occur in the American tropics. It is a Polyporus or perhaps a Trametes, and has been called both. It is usually of a season only, and the old specimens turn black. Both Patouillard and Berkeley discovered "new species," both based on old, effete conditions of Polyporus ochroleucus. The spores are always abundant and are peculiar, and are in reality white "Ganodermus" spores. There are but two species known with such spores, Polyporus ochroleucus of the East and Fomes Ohiensis of America. If the sections of polypores are ever arranged strictly on the relationships of the species, these two species will form a "genus" on the same character on which rests the "genus" Ganodermus, excepting that the spores are not colored, but hyaline. Both in its general appearance and the regularity of the pores there is a resemblance between this plant and Polyporus (Ganodermus) ochrolaccatus.

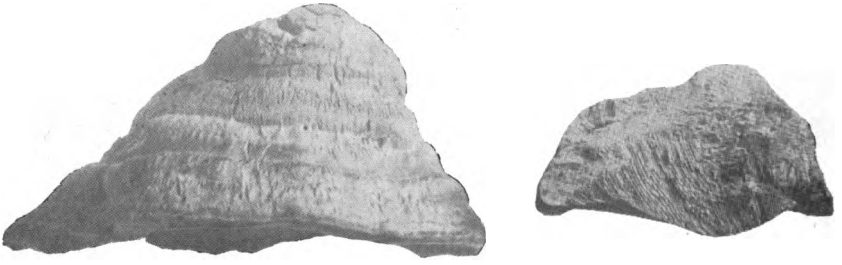

Fig. 651.
Polyporus ochroleucus.

Usually it is a Polyporus, but we have one collection which shows distinct, annual layers, making it a "Fomes." The surface is usually smooth, sometimes strongly rough, fibrillose, and sometimes it is reddish, stained. The spores of weathered specimens become slightly colored. It has a strong leaning toward "Ganodermus" in more than one respect.

SPECIMENS.—Australia, Edmund Jarvis, Miss E. I. Benham, H. B. Williamson, J. T. Paul, Miss Margaret Flockton, J. G. O. Tepper; Japan, J. Umemura, A. Yasuda, S. Kawamura; Ceylon, T. Petch; Africa, Rev. C. Torrend, A. J. T. Janse.

Compare Brisbanensis, Kerensis, Léveilléi, also Fomes compressus.

POLYPORUS VERSISPORUS.—Pileus ungulate, dimidiate (about 2 x 4 x 2 cm.) Surface with a reddish stain, hard, but no distinct crust. Context pale, isabelline, hard. Pores minute, 8-10 mm. long. Cystidia, none. Spores cylindrical, 4 x 8-10, hyaline, straight.

Based on a collection (251) from A. Yasuda, Prov. Tosa, Japan. In general appearance it is so close to Polyporus ochroleucus that I at

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first took it to be this species. Same shape, size, context, and general coloration, though darker. On comparison, the pores are more minute, but the main difference is in the spores, which are entirely of a different type, shape, and size.

Compare Delavayi.

D.—Pileus a hollow globe, bearing the pores on upper side of the interior.

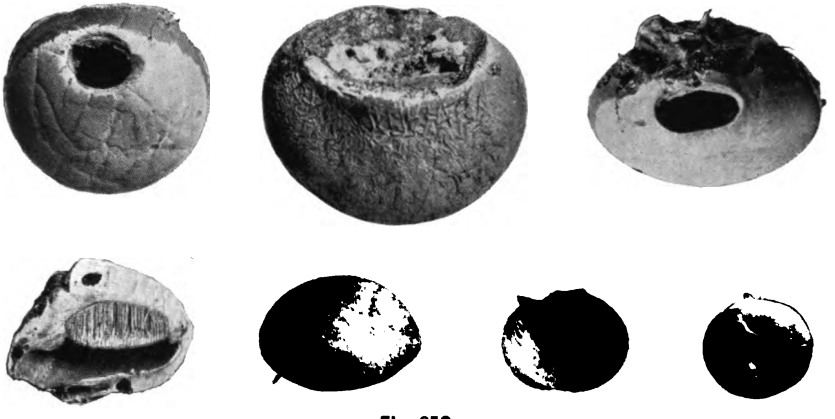

Fig. 652.
Polyporus volvatus.

POLYPORUS VOLVATUS (Fig. 652).—Pileus a hollow globe, with an opening behind, bearing the pores on the upper side of the interior. Sessile or with a false stipe. Surface smooth, with a thin crust, usually the upper portion only colored with a reddish brown, resinous stain. Pores small, slightly darker than the context, and with darker brown mouths. Spores oblong, 4 x 12, hyaline, smooth.

This most curious Polyporus occurs on spruce, both in our eastern, western, and northern States. It seems to be absent from the South. It is found also in Japan and China, but is unknown from Europe. It proceeds from perforations of the bark caused by a beetle, and Mr. Kawamura, of Japan, writes me that in Japan it is usually stipitate, the stipe penetrating the hole. We think it will prove that this is a false stipe of a mycelial nature, something like the mycelial core that occurs in Polyporus rheades. As we have in a previous publication given a history of the mistakes that were made in naming the plant, we shall not repeat them here.

SPECIMENS.—A number, mostly from California, Canada, and New England. Japan, A. Yasuda.

Compare Helix, inflatus, obvolutus, Torreyi.

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E.—Trametes.

The following three species are (doubtfully) better classed in Trametes on account of their "punky" flesh, but are apt to be sought in this section of Polyporus.

TRAMETES SUAVEOLENS.—Pileus usually applanate, about an inch thick. White when growing. Surface anoderm, hard, but minutely pubescent and soft to the touch. Context white, dry, corky-punky. Pores firm, rigid, medium, round. Spores 3-4 x 10-12, cylindrical, curved.

It is a common species both in Europe and the United States, always on willow. It is quite fragrant when fresh, odor of anise, and is easily recognized. When in its prime it is a pure white plant, but old and wintered specimens turn dark. The surface is soft, pubescent, and in northern Europe the pubescence is longer and might well be described as villose. Fries' type, in the British Museum, is of this nature. We do not seem to have this villose form in the United States.

ILLUSTRATIONS.—Sowerby, 228, pores larger than usual; Boudier, 163, drawn from a discolored specimen; Gillet, 473, the best. Many others.

SPECIMENS.—Many, from United States and Europe.

TRAMETES ROBINIOPHILA (Fig. 653).—Pileus ungulate, white, 2-3 inches thick, with dull, white, mat surface. Context white, drying soft and punky. Pores minute, round, 4-6 mm. deep, white, drying isabelline or darker than the context. Spores subglobose, 7-8 mic., hyaline, transparent, with large guttae.

The locust (Robinia pseudacacia) is the only host that bears this species. It is common in the Middle West. Usually it grows from decayed parts of standing trees, and is usually solitary. It has been known for many years, and was the basis of Polyporus salignus of Morgan's record. Recently Murrill discovered that it was a new species, and named it as above. It is a question whether it is a Polyporus or a Trametes. The punky context is much softer but similar to that of Trametes suaveolens, and for that reason it may be classed as Trametes. We do not know it excepting from the United States.

SPECIMENS.—Many from the United States, all from locust.

TRAMETES CUBENSIS.—Pileus thin, rigid, sessile. Surface smooth, no distinct crust, white, usually with a reddish blotch or stain at the base. Context white, rigid, punky, becoming dark with age. Pores minute, round, rigid. Spores we have never found.

This is a frequent species in the American tropics and southern Florida, and a very peculiar one. When growing it is white, and it dries white, but after some months on herbarium specimens there comes a red stain on the pileus and the plants turn dark, finally getting almost black. Perhaps the stain comes on plants in situ, but we collected it white in Florida and did not recognize it until after some months

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Fig. 653.
Trametes robiniophila.

when we noticed the red stain beginning to develop. Montagne described it as white, but the specimen now has a red stain and the context (even the hyphae under the microscope) is dark, almost black. Murrill had a clear idea of the species, and he was the first one who had. There are abundant specimens at New York. Berkeley made one Cuban determination right, but his Polyporus hemileucus in the type idea with "white context" is this plant, although he also cites specimens that are Polyporus valenzuelianus. Old specimens of Trametes cubensis and Polyporus valenzuelianus, both having red stains on the pileus and the context becoming dark with age, are very likely to be confused. Freshly collected specimens, however, can

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readily be distinguished by the context, being white in cubensis and olive in valenzuelianus.

Trametes cubensis is a frequent species in American tropics, and abundant specimens are at New York.

SPECIMENS.—Florida, C. G. L.; Brazil, Rev. Rick, Rev. Thiessen; Jamaica, Wm. Kirkland.

Compare albo-incarnata, comptulus, hemileucus, ostreatus.

SECTION 83. VERY THIN WHITE PLANTS.

Excepting Polyporus floriformis, all are largely resupinate, with reflexed, thin pilei.

Fig 654.

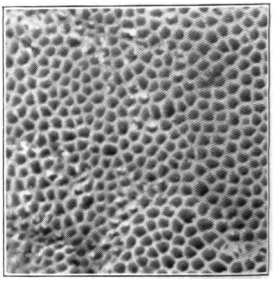

Fig. 655 (Pores X6).

Polyporus semisupinus.

POLYPORUS SEMISUPINUS (Fig. 654).—Largely resupinate, with a thin, reflexed pileus. Pileus pure white, thin, with smooth, dull surface, no distinct crust. Flesh white, drying firm. Pores (Fig. 655) very minute, round, white. Spores 1 x 5, allantoid, cylindrical, curved.

This is not rare either in Europe or United States. It grows on fallen branches and small stems of deciduous wood rather than on logs. It is always largely, sometimes entirely, resupinate, and usually has a rather thin, reflexed pileus. The color is white, drying slightly yellowish. This plant was called by Bresadola (Fung. Kmet) Polyporus chioneus, and it seems to fit the original description. A quite different plant (cfr. Polyporus albellus) is in Fries' herbarium, from Karsten, under this name, and it surely is not Polyporus chioneus "Fries in litt." at the British Museum. We have vacillated for years as to what to call Polyporus chioneus, and finally concluded not to so call anything. For a long while we so named specimens of this species. The type of Polyporus semisupinus at Kew is scanty, but characteristic, and it is not the plant Murrill has taken it to be. It was Polyporus nivosus (erroneously) for Morgan, and Peck named it Polyporus semipileatus.

SPECIMENS.—We have about twenty collections from Europe and United States. Most of them were determined as "Polyporus chioneus" when received.

Compare caesiosimulans, semipileatus.

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POLYPORUS FLORIFORMIS.—Pileus thin, white, smooth, usually reduced at the base, unchanged in drying. Flesh thin, 1-2 mm., stiptic to taste. Pores small, round, or slightly elongated, pure white, 2-4 mic. long. Spores 3 x 4 mic., opaque.

This is a thin, white species, growing imbricate and pilei reduced at the base, hence might be sought in Petaloides. It is rare both in Europe and United States, and grows on acerous wood. It was well illustrated by Bresadola (t. 63), who really named the plant, although they write Quélet after it. It has a stiptic taste, and one of my correspondents holds it to be Polyporus stipticus.

SPECIMENS.—Sweden, C. G. L.; Michigan, Dr. C. H. Kauffman; England, H. C. Hawley; New Hampshire, Kate A. Jones; France, Rev. H. Bourdot (as stipticus).

Compare gratus.

Fig. 656.
Polyporus lacteus.

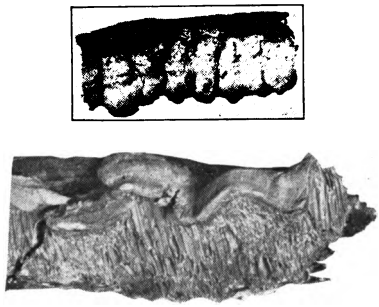

Fig. 657.
Polyporus undosus.

POLYPORUS LACTEUS (Fig. 656).—Pileus effuso-reflexed, white, rather thin, with rugulose, undulate surface. Flesh white, soft, friable. Pores small, round, thin, but on the effused portion elongated, unequal, angular. Spores 1½ x 4-5 mic., allantoid.

This to me is a rare plant, and so stated by Fries. I have but one collection from Otto Jaap, Germany, which grew on poplar. There is a poor cotype at Kew which I have compared with Jaap's collection and found to be the same. It has the same flesh, surface, and spores as Polyporus trabeus (compare page 301), but is a thin plant, largely effusive behind, with the pores on the resupinate portion elongated and angular. I believe it is too close to Polyporus trabeus, but in my view it is not Polyporus trabeus of Fries; and the Fries' view is "Law" nowadays.

SPECIMENS.—Only one, from Otto Jaap, Germany.

ILLUSTRATIONS.—Fries' Icones t. 182, fig. 1. Surface shown more hispid than either our specimen, or his specimen at Kew.

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POLYPORUS UNDOSUS (Fig. 657).—Pileus effuso-reflexed, white, narrow, sulcate. Pores smooth, elongated on the resupinate portion. Spores flattened, elliptical, 3 x 4 mic. on broad view, 2 x 4 mic. on narrow view.

This rarely occurs, on the hemlock, in the United States. We have but one collection from Mr. Weir, Idaho, and there are but two at New York. Excepting as to its host and its broader spores, it is very similar to the preceding species.

Thin, white plants with a reddish tendency are found in the next section.

SECTION 84. WHITE WHEN FRESH, BUT TURNING REDDISH IN DRYING OR WITH REDDISH SPOTS ON THE SURFACE.

Two of these species, viz., mollis and fragilis, are very sensitive when fresh, being pure white, but quickly spotting red when handled.

POLYPORUS MOLLIS.—Pileus dimidiate, usually large, 2-3 inches in diameter, 1-2 inches thick, often imbricate. Surface with fine, appressed fibrils. Flesh white, turning red when cut; very soft when fresh, firm but crumbly when dry. Pores large, sinuate, with thin, uneven edges. Spores (Fig. 658) 1 x 5, allantoid, cylindrical, curved.

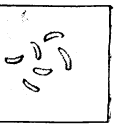

Fig. 658

This is a white species found on pine trunks. When perfect it is pure white, no doubt, but it turns red when bruised or old; and specimens are usually discolored, always when dry. We have the plant from several correspondents, both Europe and America, but have only collected it once, in Florida. Persoon named the plant at an early date, and when we found it fresh we were impressed that he gave it a quite appropriate name, for it is unusually "soft." It has same general characters, white flesh turning red, large pores, allantoid spores, and has been confused, we are confident, with fragilis by Fries, Quélet, and others (cfr. Letter 43, under Weir). The main difference is general size. Mollis is a large species, with flesh 2-5 cm. thick, growing dimidiate, imbricate. Polyporus fragilis is small, generally subresupinate, with often reflexed pileus, less than a cm. thick.

ILLUSTRATIONS.—We believe there are none. Fries' Icon. t. 182 is Polyporus fragilis. Britzelmayr's cartoon is probably Polyporus fragilis. Hartig t. 9 is Polyporus Schweinitzii, and the pathological men Comes and Voglino we have not looked up, but they no doubt got their idea from Hartig.

Compare erubescens, Smallii, Weinmanni.

POLYPORUS FRAGILIS.—Pileus small, thin, conchoid, usually resupinate behind, pure white, but quickly spotting red when touched. Surface finely pubescent with no crust. Flesh white, soft, quickly turning color when broken, drying discolored, fragile. Pores (Fig. 661) long, sinuate, angular, with uneven edges. Spores allantoid, 1½ x 5, cylindrical, curved, hyaline, smooth.

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We found this not rare in Sweden. It grew on pine or spruce, and usually was largely resupinate, sometimes with a narrow, reflexed pileus, rarely with a well formed pileus as shown in Fries' Icones. We have Polyporus fragilis also in the United States. Fries records Polyporus fragilis and Polyporus mollis as equally common in Sweden, but what distinction he made between them is difficult to find either in his description or his Icones. We found but one similar plant in Sweden, and from my observation, and Fries' description and figures, I came to the conclusion that what he called Polyporus mollis was not Persoon's plant, but was Polyporus fragilis. Quélet's description would indicate that he also had only one plant under both names.

ILLUSTRATIONS.—Fries' Icones t. 182, fig. 2, and also we believe fig. 3 (as mollis). Both are more strongly pileate than the usual plant as we found it in Sweden. Sowerby's figure t. 387, fig. 6, here cited, is some abnormality and has no possible relation here.

Compare fimbriporus, Keithii, sensibilis.

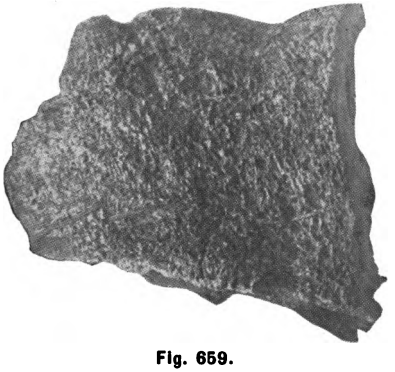

Fig. 659.

Fig. 660.

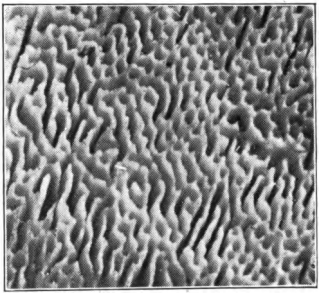

Fig. 661.

Polyporus ursinus. Fig. 660, spores magnified. Fig. 661, Pore mouths of Polyporus fragilis (X6).

POLYPORUS URSINUS (Fig. 659).—Pileus dimidiate (1 x 5 x 7 cm.), white, but turning reddish when bruised and on drying. Surface strongly scrupose, tomentose, with rigid, tufted hairs, which have the same color change as the flesh. Flesh white, soft when fresh, but drying firm and hard. Pores medium large, sinuate, white, discolored in drying. Spores (Fig. 660) narrow-piriform, tapering to the base, 2½ x 8-10.

This we collected growing on pine at Temagami, Ontario, August, 1907. We referred it, from the description, with which it agrees exactly, to Polyporus Weinmanni of Europe, but we find the type of the latter plant at Kew is quite different, being Polyporus mollis. We think Professor Peck has collected the same plant (cfr. Rep. 31) and also referred it to Polyporus Weinmanni.

POLYPORUS FISSILIS.—Pileus soft, white, often largely resupinate behind, 3-4 inches in diameter, an inch thick. Flesh soft,

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white, drying sordid, rather hard and "fissile." Surface white, scrupose when fresh, no distinct crust, drying reddish brown, and wrinkled. Pores medium, large, about 1 mm., with tubes 1 cm. long, white when fresh, drying reddish agglutinate with a waxy or resinous appearance. Spores subglobose, 6-7 mic. in American species, 4-5 mic. in European.

This species has had a curious history. It is a European plant, but it is impossible to trace it definitely in European literature; and the name we use was applied to it by Berkeley from an American specimen. The type is a thin section which can be recognized after one learns the species. It was correctly interpreted by Murrill. In Europe it is not recognized in any of the works of Fries, Berkeley, Persoon, Quélet, or Schroeter. Bresadola first referred it to Polyporus rubiginosus (Fung. Kmet.), and in later years to Polyporus albus. We are unable to reconcile it to either. Romell recently named it Polyporus albo-sordescens. The name Berkeley applied, meaning capable of being split in the direction of the grain, is not inapplicable.

In the United States Polyporus fissilis occurs only in our Southern States, on deciduous wood. In Europe it is of a more northern range, and Mr. Romell finds it about Stockholm. We have several collections from Europe.

Compare albosordescens, albus, rubiginosus.

Fig. 662.

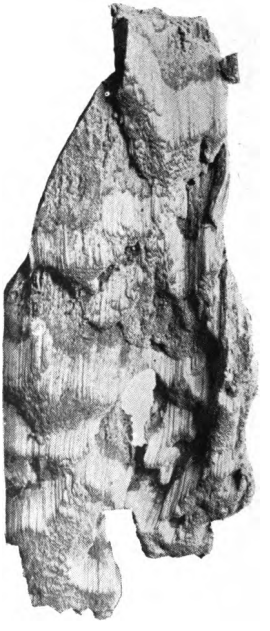

Fig. 663.

Polyporus undatus. Fig. 662, a rare pileate form. Fig. 663, the usual resupinate form.

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POLYPORUS UNDATUS (Figs. 662 and 663).—Pileus white, usually resupinate, or with a reflexed pileus, turning dark reddish brown in drying. Pores minute, or hiascent, in an oblique position, mouths cinereous when dried. Spores globose, 3-4 mic., hyaline, smooth.

This species is usually resupinate, hence is generally classed as Poria. In Europe it is rarely known to develop a pileus. It is frequent in United States, always as a Poria. Persoon knew it only from a dried specimen that had changed color. He gave a very good figure of the dried plant (Myc. Europe, t. 16, f. 3). The plant is represented in most museums under the name Polyporus Broomei, having been so distributed by Rabenhorst, No. 2004, also Sydow, No. 5. Bresadola was the first to clear up the subject. He refers here as a synonym Polyporus adiposus, as the plant is known in the English text books. From what we could learn from the material at Kew, adiposus seems to be the same plant. In the United States, Polyporus undatus is a frequent "Poria," forming slabs on very rotten logs. It is common around Cincinnati, but we have never seen a pileate form with us.

Compare adiposus, Broomei, cinctus.

POLYPORUS PALLESCENS, in sense of Romell is very close to Polyporus undatus and appears similar to the eye. The spores 2 x 4 are not the same, however, and I think it is a different species, but very close.

POLYPORUS STIPTICUS.—Pileus dimidiate (1½ x 3 x 4), white, rufescent on margin. Surface dull, smooth, no distinct crust. Flesh white, drying white and hard. Pores, at first, round, small, becoming larger and irregular when old; 6-8 mm. long, white, slightly rufescent in drying. Spores (Fig. 664) (W.) elliptical, and slightly curved, guttulate, 1½ x 3-4.

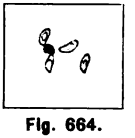

Fig. 664.

We know this only from English collections, and it is evidently a very rare plant. The flesh is stiptic to the taste, and we are convinced it is the original of Polyporus stipticus of Persoon, as to description, but surely not "passim" on trunks, and not the common white plant usually called Polyporus stipticus in France (cfr. albidus). We have but two collections of this species from England, and one each from France and Sweden, these both doubtful.

SPECIMENS.—England, E. M. Wakefield, Chas. Crossland.

POLYPORUS CRISPELLUS.—Pileus thin, white, usually largely decurrent behind. Surface fibrillose, nearly smooth. Pores medium large, thin, collapsing, discolored in drying. Spores 3½ x 5-6, oblong, hyaline, smooth.

If I correctly refer specimens received from Mr. Weir, this is close to, if not the same as, Polyporus destructor of Europe. It is thinner, the spores slightly longer, but it has the same discolored pores and is probably the same plant. Peck states that it differs from destructor by having a zonate pileus, a feature not shown in dried specimens. Mr. Weir's specimens are very thin, and curl in drying.

SPECIMENS.—Montana, James R. Weir, on pine.

Compare pachycheiles.

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POLYPORUS CERIFLUUS.—Pileus sessile with a thin flesh. Surface rugulose with reddish stain. Flesh white, unchangeable, stiptic to the taste. Pores small, somewhat rugulose, white, drying yellowish. Spores not found in type.

This is represented at Kew by a single specimen from South Carolina. There are other collections at New York. We have one from Montana on Populus which we have compared with the type. This has allantoid spores 1 x 5. It is a species quite close to fragilis, but the pores are minute, the white flesh is unchangeable, and the red stain of the pileus is natural, not due to color change.

SPECIMENS.—Montana, on Populus, James R. Weir.

POLYPORUS ARMENIACUS.—Pileus dimidiate, applanate, about 1 cm. thick. Surface pale reddish, soft to touch, minutely velutinate. Context firm, rigid, white with a pale pinkish cast. Pores minute, firm, 2-3 mic. long, the tissue concolorous, but the mouths reddish like the pileus surface.

Only known from types from Brazil at Kew. Other determinations are surely different. Polyporus armeniacus has pale, almost white, flesh and pore tissue, but the surface of pileus and pore mouths are uniformly reddish, possibly a change in drying. As the name armeniacus was preoccupied by the same author, Prof. McGinty proposed to change it to Polyporus Virginii-Cuboni, but the original being Polyporus amorphus, the occupation was only temporary, and the change was unnecessary.

SECTION 85. WHITE WHEN FRESH, TURNING BLUE WHEN TOUCHED.

POLYPORUS CAESIUS.—Pileus sessile, white, turning blue at once when touched, and drying greyish. Flesh soft, white, turning blue when broken. Pores large, sinuate, with uneven edges. Spores 1½ x 5, rod shape, straight, hyaline, smooth.

This is a frequent plant, usually on pine. It occurs more rarely on frondose wood, and we have collected it on willow. It is common in Europe and America, and recorded from Africa. There should be no trouble in telling Polyporus caesius, for it is the only white species that turns blue when touched. The dried specimens have a greyish white cast by which they may be recognized. Sowerby many years ago records that the fresh plant has an anise odor, and one of our correspondents made the same observation. We have never noted it.

SPECIMENS.—Many, Europe and United States.

ILLUSTRATIONS.—Both the good pictures Gillet and Sowerby (226) show white plants. The characteristic blue spots when touched, which are the features of this plant, should have been indicated.

Compare caeruleus, caesio-coloratus, subchioneus.

NOTE.—Greenish spots come on Polyporus semisupinus, teste Morgan, and we believe Polyporus caesiosimulans was probably based on this species. With its very minute pores it cannot be confused with Polyporus caesius.

SECTION 86. CONTEXT VERY SOFT AND COTTONY.

POLYPORUS LEUCOSPONGIA (Fig. 665).—Pileus white, sessile, dimidiate, with soft, dull surface, no distinct crust. Flesh white, unchangeable, very soft and spongy near the surface, more

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firm below. Pores medium large, about 2 mm. deep, with angular, irregular mouths, white, discolored in drying. Spores globose, 6-8 mic., hyaline, smooth.

Fig. 665.
Polyporus leucospongia.

This is a remarkable species readily known by its very soft surface flesh, which is so soft that to the touch it is like a piece of cotton. It occurs on spruce in the mountains of California, and was first sent to Europe by Harkness. His specimens were distributed by Ellis 1104 and Rabenhorst 3432, hence found in most museums. They write Cooke's name after Polyporus leucospongia, though Cooke referred it to Polyporus labyrinthicus (which no one knows) and never took the trouble to change his label. Outside the Harkness collections, we have seen but two specimens, one from Mrs. Whetstone, Minnesota, which we refer here, though with some doubt, and a collection from Cuba, Underwood, which was called Polyporus altocedronensis but is the same as Polyporus leucospongia on comparison. Since above was in type Overholts found the plant abundantly in Colorado.

Compare altocedronensis.

SECTION 87. CONTEXT, WHEN DRY, SPONGY AND LIGHT.

A.—Pores large, sinuate.

POLYPORUS OBTUSUS (Fig. 666).—Pileus sessile, large, often six inches or more in diameter. Surface fibrillose, hirsute, rough, soft, no distinct crust. Context (when dry) pale yellowish white, soft,

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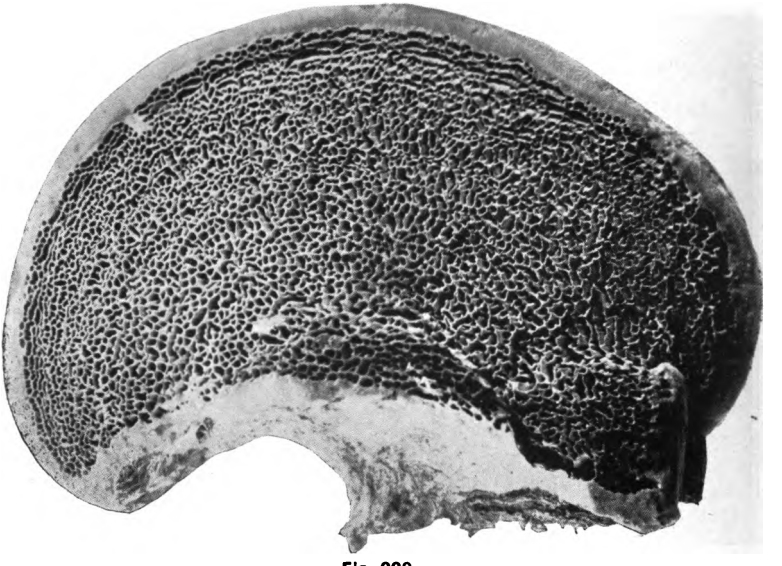
light, spongy. Pores very large, irregular, 1-3 cm. long, 2-3 mm. wide, light tissue, concolorous with the flesh. Spores 8-10 mic., hyaline, smooth, with large guttae.



Fig, 666.
Polyporus obtusus.

This is a remarkable species not rare in portions of the United States. It generally grows on living black oaks, causing a heart rot that eventually kills the tree. It is said not to infect the white oaks or red oaks. This fungus is noteworthy for its soft, spongy flesh, light weight, and large pores. We have never seen it growing, but we think fresh specimens are more yellow than the dried ones.

Polyporus obtusus was most probably the plant that Schweinitz called Sistotrema spongiosum, changed by Fries to Polyporus labyrinthicus, of which no specimen exists. It is found in Schweinitz's herbarium as Polyporus unicolor, but does not agree with his description of unicolor. The first specimen to reach Europe was collected by Drummond (near New Orleans, probably), and named in ms. by Klotzsch as "Polyporus Drummondii Klotzsch," but is not the plant published under that name. Berkeley published it as Polyporus obtusus. The plant is not infrequent in the United States in sections where the black oak grows. In Europe it is not surely known, though we should here refer a specimen collected in Hungary by Kmet, which was referred to Polyporus Schulzeri, and probably is Polyporus Schulzeri according to the poor picture that Kalchbrenner gave of it. It has never been collected in western Europe. In the New York

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Gardens are specimens from Jamaica (named Polyporus luridescens). We have it from Ceylon (?), and the specimen from India that Berkeley called Trametes Hobsoni should, in my opinion, be here referred.

Compare Hobsoni, Irpex, labyrinthicus, laxus, luridescens, Schulzeri, spongiosus, tomentoso-quercinus, Tyrolensis, unicolor.

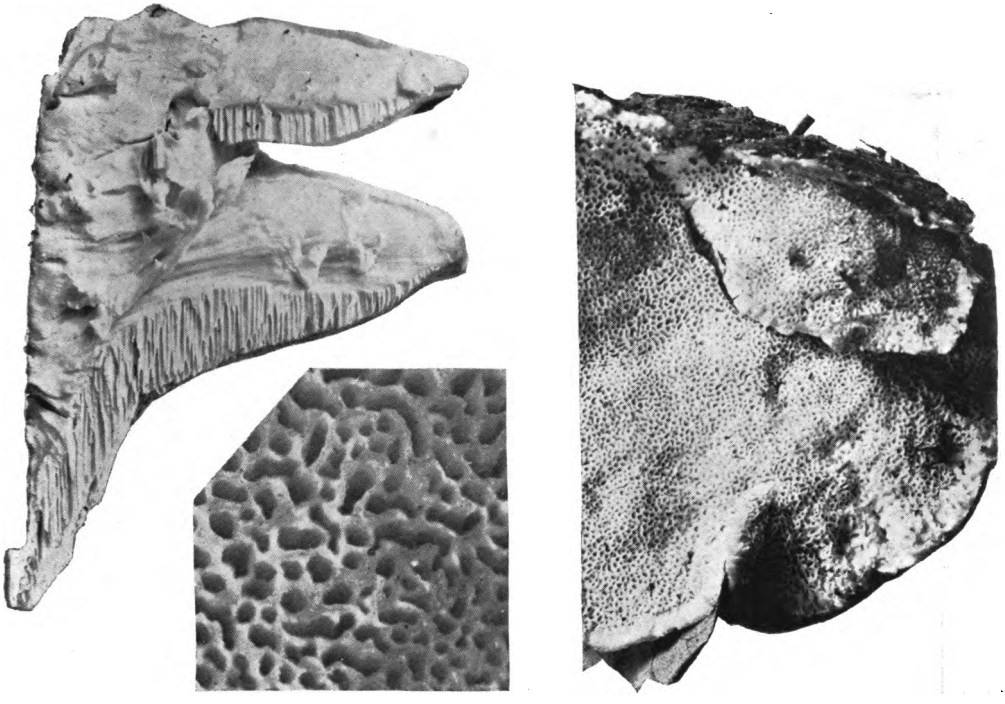

Fig. 667.
Polyporus delectans. Showing pores enlarged (X6).

POLYPORUS DELECTANS (Fig. 667).—Pileus sessile, usually long decurrent behind, and imbricate. Surface rough, anoderm, soft. Flesh white, drying light and spongy. Pores large, 1-1½ cm. long, with mouth 1-2 mm., often irregular. Spores subglobose, 7-8 mic., hyaline, each with a large gutta.

In the fall of the year, usually late, we often find around Cincinnati this large, white species growing on frondose logs. When fresh it is white, but in drying it turns yellowish. It was named by Peck from species sent by Morgan from Cincinnati. Berkeley had the plant, but he referred it as a variety of Polyporus obtusus, hence did not succeed in getting his name attached to it, which is a pity. Polyporus delectans seems to occur only in the Middle West. All the specimens in my collection or at New York are from Ohio or Indiana.

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POLYPORUS BOREALIS (Fig. 668).—Pileus sessile, dimidiate, or sometimes growing more upright and reduced at base. Surface hirsute-tomentose, particularly when young; when old, more matted. Context white, tough, fibrillose, spongy when fresh, drying light weight and fissile. Pores at first round (Fig. 669), angular with thick walls, becoming, when mature, long, sinuate, daedaloid (Fig. 670). Spores elliptical-compressed globose, 5 x 6 mic., hyaline, smooth.

Fig. 668.

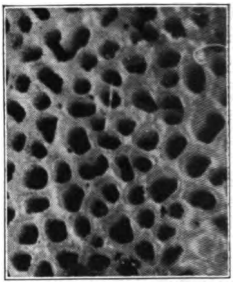

Fig. 669.

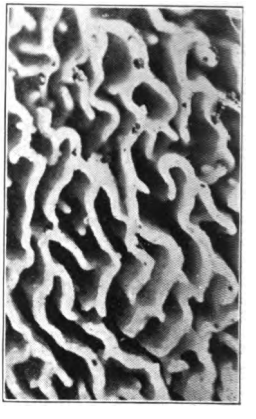

Fig. 670.

Polyporus borealis. Fig. 668, young pores (X6). Fig. 669, old pores (X6).

In Europe this plant is well named, occurring in large quantities in northern Europe, always on Abies. While a plant of common record in more southern Europe (England), we doubt if they have it in England, excepting perhaps in Scotland. In the United States we have never seen it abundant, but it occurs in northern localities, and we have one collection from Tennessee.

As one first begins to notice Polyporus borealis in Sweden, it is a round tubercule, then triquetrous and thick as it begins to develop

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its pores. At length thin with acute margin, and usually four to six inches in diameter. It is the only abundant, white Polyporus one notes in Sweden.

Compare Ptychogaster, also Ptychogaster albus, Myc. Notes, Polyporus Issue, page 30.

Forms.

POLYPORUS SPATHULATUS.—The common Polyporus borealis is a thin, dimidiate plant, but it has a tendency to form behind a reduced base, or a "short lateral stipe," as Fries notes it. He named this form as above.

POLYPORUS LAPPONICUS.—This was named by Romell from a single specimen on Abies in Lapland. It is similar to Polyporus borealis, and was so taken by Romell when collected. The spores, oblong, 3-4 x 8-12, are quite different. We have seen no specimens.

B.—Pores small, round.

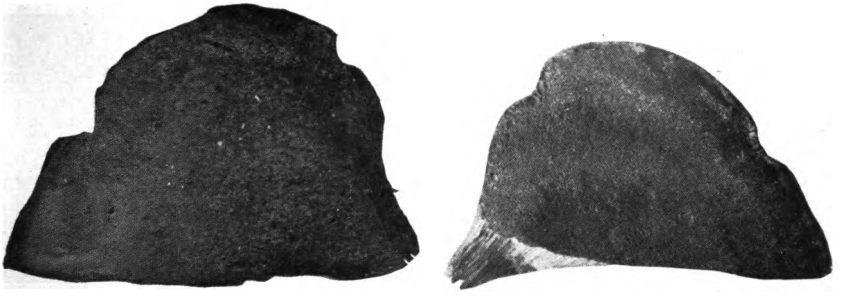

Fig. 671.
Polyporus occidentalis.

POLYPORUS OCCIDENTALIS (Fig. 671).—Pileus sessile, white, with soft, fibrillose surface. Context light weight, soft, friable near the surface, firmer below. Pores white, small, 2-3 to mm.

Quite similar to Polyporus obtusus in the color and soft, light-weight flesh, it differs markedly in having small pores. It is quite a rare plant, and but few collections are at New York Gardens. It occurs on beech. We have only one collection, from S. H. Burnham, New York.

POLYPORUS PELLES.—Pileus dimidiate or from a reduced base. Surface soft, densely hairy, dark brown. Flesh (of dried specimens) hard below, softer above, and resolved into the dense hairy surface; white (probably) when fresh, but discolored, fuliginous in specimen. Pores minute, round. Spores elliptical, 3½ x 5½, hyaline.

Based on a specimen (No. 8) from E. Jarvis, Queensland, Australia. The soft, hairy surface is comparable to the fur of some animal. The plant is evidently related to Polyporus rufescens (but

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with different spores), and a better knowledge of it may transfer it to Section 33 of stipitate species. The type specimen, however, is only reduced at the base. The flesh next to the pores is hard and firm, but is softer above.

SECOND GENERAL DIVISION.

CONTEXT WHITE OR PALE. PORES COLORED. SPORES HYALINE.

We divide this division into three sections:

Thin plants, pileus less than a cm. thick.....Section 88.
Thick plants, ungulate..... " 89.
Thin plants, with gelatinous pores. (Gloeoporus in part).. " 90.

SECTION 88. THIN PLANTS, LESS THAN A CM. THICK.

POLYPORUS ADUSTUS.—Pileus thin, dimidiate, imbricate, often largely decurrent. Surface finely tomentose, isabelline. Flesh white, slightly discolored when dry, thin, 3-5 mm. Pores dark adustus or fuliginous, small, round. Spores allantoid, 1-1½ x 5.

We have here a most abundant species throughout the United States and Europe, on frondose wood. Around Cincinnati it favors the beech, but it has no especial affinity to the host. The imbricate pilei often cover many feet on the side of logs or extend for many feet over the trunks of standing, dead trees. Polyporus adustus is often confused with Polyporus fumosus. In adustus the pores are dark in the growing plant. In fumosus they are white, but turn dark as the plant dries. Besides, the spores are different. Still, we often have collections of dried Polyporus fumosus which are difficult to tell from Polyporus adustus, and in the museums many specimens of Polyporus adustus are labeled as being Polyporus fumosus.

There is not much variation of Polyporus adustus as it occurs in Europe and the United States. Yellowish specimens have been called Polyporus carpineus. Sometimes Polyporus adustus develops a fragrant odor. Then it is apt to be called Polyporus fragrans, but not correctly, for Polyporus fragrans is a form of Polyporus fumosus. Polyporus adustus in its various forms is of world-wide distribution. These foreign plants have received many names, as recorded in our synonyms. The following two are all we have noted that seem to us worthy of a separate name.

ILLUSTRATIONS.—Bulliard, 501 (as pelleporus), rather dark. Sowerby, 231 (as carpineus) pores are right but color of pileus never as "fawn" as this. Gillet, good.

SPECIMENS.—Abundant from Europe and America. We have specimens also from Argentine Ceylon, Japan, India, Madagascar (?). It appears to be frequent in Japan.

Compare Burtii, carpineus, Curreyanus, digitalis, dissectus, dissitus, fusco-cinereus, Halesiae, Karstenii, Lindheimerii, MacOwani, scanicus, simulans, strumosus, subcinereus, tristis.

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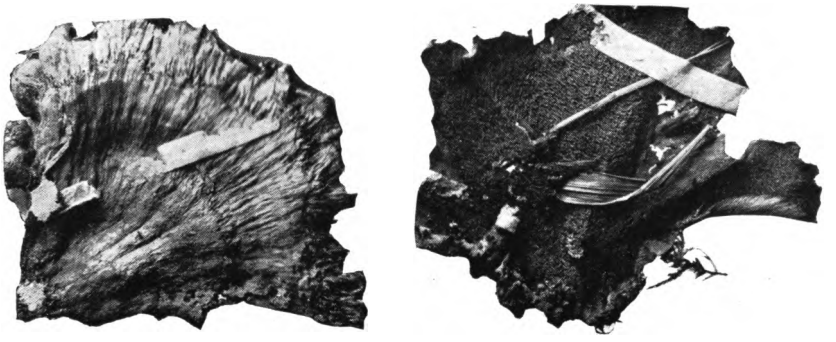

Fig. 672.

Polyporus crispus.

POLYPORUS CRISPUS (Fig. 672).—Same as Polyporus adustus excepting that it has large, sinuate pores. It is usually quite thin. Intermediate pore forms occur connecting Polyporus crispus with adustus. In its type form Polyporus crispus is infrequent in Europe.

SPECIMENS.—A few from Europe, and they are not strongly distinct from Polyporus adustus.

Compare tristis.

POLYPORUS SECERNIBILIS.—This agrees with Polyporus adustus as to habits, flesh, pores, and spores, but the surface is brown, minutely pubescent, zoned with a resemblance to the surface of Polystictus zonatus. It is an Eastern form, originally known from Ceylon. The types are in quite poor condition, but we have fine specimens from the "type locality" Prof. Petch.

SPECIMENS.—Ceylon, T. Petch; Mexico, S. J. Bonansea; India, G. H. Cave; Japan (?), A. Yasuda, not typical.

Compare repandus.

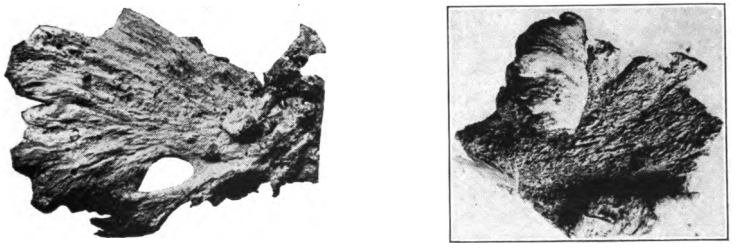

Fig. 673.

Polyporus campylus.

POLYPORUS CAMPYLUS (Fig. 673).—This, known only from the old type Tasmania, has the general aspect of being Polyporus crispus, a similar plant to the eye, but the pores are paler. It is not crispus, however, as there are abundant globose, hyaline spores, which we judge are conidial only. The type material does not give a very good idea of it, and we expect when well known it will prove to belong to the section Petaloides.

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POLYPORUS ELMERI.—Pileus thin, dimidiate, with ochraceous surface, no distinct crust. Flesh very thin, 1-2 mm., white, brittle. Pores minute, round, isabelline, darker than the flesh. Spores subglobose, 3½-4 hyaline, with surface minutely but distinctly rough. This is a rare species, only known from a few collections in the Philippines. The general appearance of the pores is that of Fomes lignosus or nearer the color of Poria undata. The plant is much more closely related to Polyporus zonalis than to others of this section.

SECTION 89. THICK, UNGULATE PLANTS.

POLYPORUS AMARUS.—Pileus ungulate, often large, 10-20 cm., broad, 6-12 cm., thick. Surface pubescent when young, rimose and chalky when old. Context pale yellowish, hard and brittle when dry. Pores dark brown in dried specimens, 1-2 cm. long. Mouths round, ½-1 mm. When growing, the pores are yellow or greenish yellow, turning reddish brown in drying. In the dried specimens they are much darker in color than the context. Spores 5 x 8, elliptical, hyaline, smooth.

A western species that was named and described by Hedgcock. We have drawn largely from the description. It is supposed to be the cause of the "pin-rot" in the incense cedar of the Pacific coast. Dr. Von Schrenk described this disease and named the fungus Polyporus libocedrus, but did not describe it formally; and he advises us the types are destroyed. We therefore adopt Mr. Hedgcock's name, believing, however, it would have been better had Hedgcock adopted Von Schrenk's name. Mr. Long tells us he has noted the plant abundantly in California, but he failed to send us any specimens. All we have is a little slice of the type.

SPECIMENS.—California, Geo. S. Hedgcock, a slice of the type.

Compare libocedrus.

SECTION 90. THIN PLANTS, SOMEWHAT GELATINOUS WHEN FRESH.

This (in part) forms the "genus" Gloeoporus.

POLYPORUS DICHROUS.—Pileus thin, dimidiate, usually imbricate. Surface smooth, white, no crust. Flesh white, thin, firm. Pores small, dark purplish brown, gelatinous. Spores allantoid, 1½ x 4-5, hyaline, curved.

Polyporus dichrous is a very common species in the United States and a rare one in Europe. It grows on frondose wood, imbricate, and quite extensive. When fresh the pores are gelatinous, and can be easily stripped away from the flesh. On this account the plant was erected into a new genus called Gloeoporus, which is maintained by various writers. When dried the gelatinous nature of the pores is not so evident. While it is rare in Europe, the plants are the same as the common American plant. In American tradition the plant has passed as Polyporus (or Gloeoporus) conchoides, which is partly right but

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largely wrong, for conchoides is a thin, white, tropical plant close to Polyporus dichrous.

In the northern regions of the United States and Europe Polyporus dichrous is very uniform, but it takes many color forms in the tropics, as follows:

ILLUSTRATIONS.—Sturm's flora, fasc. 16, t. 39. This seems to be the only one, and it is very good. The pores are deeper purplish than shown, but it is fair.

SPECIMENS.—Many from America, several from Europe; Japan, A. Yasuda, a very thin form; Brazil, Rev. Rick, Rev. Thiessen, exactly same color hymenium as our United States plant; South Africa, Miss A. V. Duthie.

Compare Curreyanus, Macouni, nigro-purpurascens.

POLYPORUS MADAGASCARENSIS.—This is a brown form, with thick, much more fragile flesh than the European form. We have this only from Madagascar, Henri Perrier de la Bathie.

POLYPORUS CROCEO-PALLENS is a form recently named from Java with yellow pores. There is a cotype at Kew.

POLYPORUS CONCHOIDES.—Plant when growing pure white, thin, dimidiate, imbricate. Flesh thin, white. Pores minute, white when fresh, drying flesh color, gelatinous. Spores allantoid, 1-1½ x 4-5.

Originally from India, Polyporus conchoides is widespread in the tropics. It was described from dried specimens as having flesh colored pores, and when I recently collected it in Cuba, with pure white pores, I did not recognize it until in drying the pores turned flesh color. Some one started the story that our common, temperate region plant with dark, purplish pores, Polyporus dichrous, was Polyporus conchoides, and this mistake permeates most of our American literature. While Polyporus conchoides is not rare in American tropics, I do not know it in the United States, even in Florida.

The pores are so minute that Léveillé, with his customary accuracy, discovered it to be a "new species" of Thelephora (sic). The original collection sent to Europe was from South America, and was called Boletus Thelephoroides by Hooker. It passes in Saccardo as a Polystictus, and for eighty years the type in good condition has remained unrecognized in the cover at Kew. We presume the jugglers will juggle the name Polyporus conchoides as soon as they find it out.

SPECIMENS.—Madagascar, Henri Perrier de la Bathie; Ceylon, T. Petch; Brazil, Rev. Rick, Rev. Thiessen; Nicaragua, C. L. Smith; Cuba, C. G. Lloyd.

POLYPORUS AMORPHUS.—Pileus thin, concolorous, dimidiate, imbricate, often effused and subresupinate. Surface white, smooth, minutely silky pubescent. Flesh white, subgelatinous, drying rigid. Pores small to medium, shallow, varying in color white, reddish, or flesh color, and rarely deep yellow. Spores allantoid. 1½ x 4, cylindrical, curved.

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In pine regions of Europe this is a frequent plant. It is noted for the various shades of color the pores assume. The gelatinous nature of the plant gives the pores a waxy appearance, by which the species can be recognized even when dry. In the United States it is rare, in the East. Schweinitz's record is an error, but Berkeley-Ravenel's record is correct. We have fine typical specimens from Idaho, Weir.

In olden times Link named the plant Boletus epigeus, according to his specimen, but it does not seem to have gotten into print. Fries called it Polyporus amorphus. Persoon states (truly) that it is no more amorphous than any other species, and would have changed the name to Polyporus aureolus, which, of course, Fries would not accept. He changed Persoon's names whenever it suited his fancy, but he would not stand for his own names being changed. We believe Polyporus amorphus never occurs except in connection with pine, and it often grows over pine needles.

ILLUSTRATIONS.—Gillet, very good, form with yellow pores. Sturm, fasc. 27, t. 12, best form with rosy pores (called Polyporus roseo-poris). Sowerby, 423, no doubt correct, but poor.

SPECIMENS.—Europe, a number; United States (where it is extremely rare): Idaho, James R Weir, three good collections; Michigan, C. H. Kauffman; Eastern States, F. H. Ames, Miss A. Hibbard. These four collectors (and Ravenel) are all that have ever been found in the United States. (It is not included in N. A. F.) Japan, A. Yasuda.

Compare alboaurantius, alboroseus, Armeniacus, cerebrinus, epigeus, erythroporus, investiens, Kymathodes, molluscus, roseo-maculatus, Virginii-Cuboni.

THIRD GENERAL DIVISION.

CONTEXT AND PORES COLORED. SPORES HYALINE.

This we divide into six sections. None have setae excepting the last.

Context isabelline or yellow	Section 91.
Context orange red, soft, spongy	" 92.
Context vinaceous or purple	" 93.
Context olive	" 94.
Context brown. Setae none	" 95.
Context brown. Setae present	" 96.

SECTION 91. CONTEXT ISABELLINE OR YELLOW.

POLYPORUS CROCEUS.—Pileus bright yellow when in its prime, sessile, dimidiate, sometimes large (5-15 x 10-25 x 1-3 cm.) Surface dull, concolorous, minutely velvety when young. Flesh concolorous, drying hard, and discolored. Pores concolorous, medium, small, irregular, drying hard, resinous, darker color than the context. Spores oval, 3 x 4-4½, smooth.

When in its prime, this is the most showy Polyporus that grows; nevertheless there has never been a colored plate made of it. It is rather rare in Europe, always on oak, and has a preference for growing in hollow oaks. In America it is larger and more common, often on

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hornbeam around Cincinnati. It is bright, orange yellow color when in its prime, but pales out when it gets old, and when dried loses all yellow and becomes dirty, distorted, reddish brown, and a miserable affair. The pores have some resinous principle apparently, and dry agglutinate, hard, and darker than the flesh. There is a similarity between the way these pores dry and those of Polyporus fissilis. In Europe this species was named by Persoon, and although rare it has never had any confusion in Europe (excepting misdeterminations at Berlin). In America, Schweinitz, Berkeley, and Atkinson have each discovered it to be a "new species." Schweinitz called it Polyporus Pilotae, and this name has been generally used (Morgan, Long). Berkeley called it Polyporus hypococcinus, and admitted it was same as Pilotae. And, finally, Atkinson, in blissful innocence that the plant had been known to every fungus worker under several names for eighty odd years, discovered as late as 1902 that it was a "new species," Polyporus castanophilus. Murrill was the first to suggest that the American and European plants are the same. We were able to demonstrate it when we collected plants in both countries.

ILLUSTRATIONS.—Although in its prime the most showy Polyporus that grows, no colored plate has ever been made of it. Sturm, fasc. 27, plate 1, is an evident misdetermination for Polyporus rutilans; and German mycologists have perpetuated the mistake to this day.

SPECIMENS.—A number from Europe and America and exactly the same.

Compare castanophilus, endocrocinus, hypococcineus, Pilotae, Pinicanadensis.

POLYPORUS BENZOINUS.—Pileus dimidiate, imbricate, usually three to four inches in diameter. Surface dark, chocolate brown, hispid, hairy when young; when old, matted tomentose, marked with metallic, bluish zones. Flesh pale brown (clay color when dry), drying firm. Pores small, round, firm, with colored tissue, and, when fresh, white mouths, bruising brown. Spores 2 x 5, hyaline, cylindrical, curved.

This is a frequent species in Sweden on Abies stumps, in America more rare. In England it has only recently been recorded. Freshly dried specimens are fragrant, and it has been confused in one of the latest English books with Trametes odorata, with which it has nothing in common excepting the "smell." In Europe it is known by Fries' name, Polyporus benzoinus, by all law-abiding citizens. Quélet dug up an old name from Scopoli, Polyporus fuliginosus, which he alleged is the same, and Murrill follows the allegation, applying it, however, to a different plant. Hennings believed it was Polyporus cuticularis, and specimens so named are exhibited in the Museum at Berlin.

ILLUSTRATIONS.—Fries, t. 183, good, but rather represents the next; Kalchbrenner, t. 36, f. 1, good, but misnamed, Kalchbrenner having been a better artist than he was a mycologist. Rea Trans. Brit. Soc., 1905, t. 12, correctly named, but badly colored, Rea being the contrary.

SPECIMENS.—Mostly from Europe. It is rare and hard to distinguish from Polyporus fuscus in the United States.

Compare morosus, Pinisilvestris, also Fomes fuliginosus, resinosus.

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POLYPORUS FUSCUS.—This is quite close to the preceding plant, and is best characterized in contrast. Polyporus benzoinus grows on Abies, has metallic, bluish bands on pileus, is strongly hispid when young, has firm, well-formed pores. Spores not found in dried specimens, 2 x 4-6. Polyporus fuscus grows on beech and frondose wood, rarely has metallic bands, is finely tomentose, has soft, collapsing pores, and spores 2 x 8-10, abundant in dried specimens. They are so similar that some hold them to be the same; and if our knowledge was based on a few herbarium specimens, they would be the same species for us. But we know them both from abundant fresh collections, and the points of difference are constant.

Polyporus fuscus grows in quantities in the United States, often covering the sides of logs. It develops late in the season; about the first of October we begin to notice it, and during the month it becomes the most abundant Polyporus in our woods. It freely exudes drops of water under proper climatic conditions. In Europe it is known principally from the writings. Every word of Fries' description was applicable. He records it as frequent, and the figure he cites, Flo. Dan. t. 1138, is very good. But, like the Dodo, it appears to be extinct in Europe now. At least we know no one who has collected it recently, and have only seen one specimen in any European museum, viz., an old collection by Blytt at the British Museum, and that is not certain.

This is the frondose analogue of Polyporus benzoinus. The legal name for it is Polyporus resinosus, but there are two serious objections to following the law. First, it is not resinous, and second, it is evidently not the plant that was so named. The plant has been known in American mythology generally as Polyporus resinosus, taken from Berkeley's traditions, and we have heretofore so called it (under protest, cfr., Myc. Notes, p. 490, Note 19). Polyporus fuscus is the name that Persoon evidently applied to the preceding plant and this combined, if he knew this, considering them one species. He referred (in error, evidently) Polyporus resinosus as a synonym on the vague record of Schrader. Fries took Persoon's synonym and changed Persoon's name on Persoon's synonym and the sacred law of priority, inaccurately and inappropriately in this case at least. We like to follow the law and custom as much as possible, but this is an instance so rank that we should prefer to be an outlaw. Polyporus resinosus, we believe, was originally that strongly resinous plant now called Fomes laccatus, and it was unknown to both Persoon and Fries, in their writings. Fries had the plant from Quélet. (Cfr. Synopsis Fomes, p. 284).

ILLUSTRATIONS.—Flora Dan., t. 1138, very good. Rostk., t. 29, poor if correct.

SPECIMENS.—Many, all from United States.

Compare resinosus, rubiginosus, stillativus.

POLYPORUS RUTILANS (Fig. 674).—Pileus sessile, applanate (4 x 5 x 1-2 cm.), unicolorous, pinkish cinnamon. Surface dull, concolorous, smooth. Flesh soft, friable when dry, concolorous. Pores small, round when young, at length large and irregular, 1-5 mm. long. Spores subglobose, 3½-4 mic., smooth.

This is a common plant in France, and is perhaps the most frequent Polyporus we found at Fontainebleau. In England, Sweden, and America it is less common. Berkeley did not record it in his first account of English species. Around Cincinnati we make a few collections every season, but it is rather rare. It is a plant that changes but little in drying. Persoon gave a good illustration of it, and I think

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it should never have been confused. Fries, however, called it Polyporus nidulans, and thought that his species was thicker and had larger pores. Berkeley generally used Fries' name, and under this name the plant has been generally known in America. The plant, as

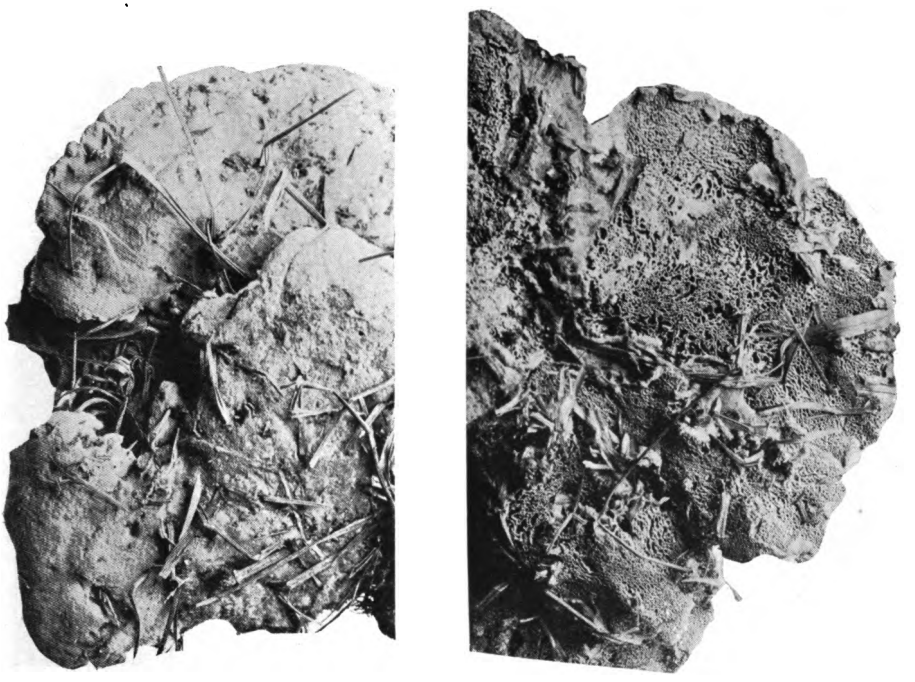

Fig. 674.
Polyporus rutilans.

we found it in Sweden (rarely) is exactly the same plant as is common in France. There is a chemical test for Polyporus rutilans. Touch it with a little alkali (potash or ammonia) and it at once turns lilac. We know no other species with this character.

ILLUSTRATIONS.—Saunders, S. & F., t. 45 (good). Persoon, Icon. & Desc., t. 6, fig. 3 (good); and if Fries had access to this figure, which is not probable, as he miscites it, there would have been no excuse for his renaming the plant Polyporus nidulans. Gillet (as nidulans) color much too pale. Bulliard, 482, not good.

SPECIMENS.—Many, Europe and United States.

Compare nidulans, niveus, pallido-cervinus, ribicola, also Fomes Novae-Angliae.

POLYPORUS CINNAMOMEUS.—Pileus applanate, a cm. thick, with a thin, smooth, reddish crust. Context thin, soft, isabelline. Pores small, round, regular (now), dark isabelline.

This, we believe, is a good species, but very rare and practically unknown in Europe. There exists a single, authentic specimen which we noted for the first time

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on our last trip to Europe. Fries evidently (as he states) did not know the plant, but he misreferred here a figure of Bolton and apparently drew his description from Bolton's figure. In that sense it was probably Fomes pomaceus. and has so been referred as a synonym by Quélet and Bresadola. Polyporus cinnamomeus has nothing in common with Fomes pomaceus, but is a species of Polyporus, otherwise unknown to me. It suggests to me only Polyporus valenzuelianus, and the pileus surface is of the same reddish color. It is evidently a most rare species of Europe, and has not been found since Trog, eighty years ago.

ILLUSTRATIONS.—None. Bolton's figure, here referred by Fries with doubt, has no resemblance to it.

Fig. 675.

Polyporus zonalis.

POLYPORUS ZONALIS (Fig. 675).—Pileus thin (4-6 mm.), rigid, drying hard, incurved. Surface reddish brown, with narrow, concentric, raised zones. Context thin, hard, pale ochraceous. Pores minute, 3-4 mm. long; when old, brown, but my impression is that they are orange when fresh. Spores abundant, globose, 4-5 mic., hyaline, smooth.

This is a common species throughout the tropical world. It was named from Koenig's specimen from Ceylon, type at British Museum. The greater part of the abundant specimens in the museums, both from American tropics and the East, are evidently the same, though aberrant forms are found in the American tropics. Fomes lignosus, also a common species in the tropics, is very much like this in its (usual) Polyporus form. We have trouble in distinguishing them. Same general colors and pileus surface. The pores in Polyporus lignosus fade out in the older parts, but retain a uniform color in Polyporus zonalis. There are always abundant spores found in Polyporus zonalis. We have never found spores in Polyporus lignosus. We have a collection from Ceylon with more adustus pores than usual. Also collections from Brazil with pileus not so strongly zoned. Polyporus zonalis in the American tropics grades into the next.

SPECIMENS.—Surinam, J. Kuyper; Nicaragua, C. L. Smith; Jamaica, N. Y. Botanical Gardens; Brazil, Anna Brockes, Rev. F. Theissen, Rev. Rick; Java, Dr. J. W. C. Goethart, Rev. Bresadola; Philippines, E. D. Merrill; Ceylon, T. Petch; Australia, W. W. Froggatt; Hawaii, C. N. Forbes; Samoa, C. G. L.; Japan, A. Yasuda.

Compare Holtermanni, inconspicuus, Jelinekii, plumbeus, polymorphus, rufo-pictus, rugulosus, also Fomes microporus.

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POLYPORUS RIGIDUS.—This is close to Polyporus zonalis, same general nature and surface. The cotype, a single specimen from Java, is at Paris. It differs from zonalis in having pale pores, with only slightly ochraceous tissue when recent, and never dark as they are in Polyporus zonalis. Spores 4-6 mic., are a shade larger, and the surface is not so strongly zoned. We collected Polyporus rigidus recently in Florida, and Mr. Overholts recently sent, from Missouri, a form largely resupinate with a narrow, reflexed pileus.

SPECIMENS.—Florida, C. G. Lloyd; Missouri, L. O. Overholts; Java, J. P. Mousset, Dr. van Leeuwen; Japan, A. Yasuda.

Compare connexus, rugulosus, surinamensis.

Polyporus Yoshinagai (cfr. Letter 54, Note 213) is a closely related plant from Japan, reduced to substipitate base, and classed in Section 15 Petaloides.

POLYPORUS CONCRESCENS.—This is scantily known from South America. It is close to Polyporus zonalis, but pores and surface are reddish. Spores not found. The types (although named by Montagne) we found only at Kew and Upsala. Polyporus microstomus and Polyporus evolutus are both the same, we think, and all three are known only from scanty types.

Compare evolutus, microstomus, nitidulus, stuposus.

POLYPORUS RECURVATUS.—Pileus thin, rigid, dimidiate, (3 x 5½ cm). Surface smooth, zonate, tawny olive. Context thin, pinkish buff. Pores minute, round, concolorous. Spores not recorded, not found by me.

A rare species of Brazil published by Rev. Thiessen in 1911. I know it only from cotype material.

POLYPORUS FARINOSUS.—Pileus rigid, thin, with acute edge. Surface reddish brown, rugulose with innate scales. Context isabelline, firm, hard. Pores minute, tissue and mouths concolorous with context. Spores not found.

I know this only from a specimen named in mss. by Rev. Rick, Brazil. It has an endorsement "odor farinae." The name farinosus is a duplicate, having been used by Brefeld, but as no one else knows to what he refers, the name will not be overworked if used the second time.

POLYPORUS SEMILACCATUS.—Pileus sessile, applanate, thin (4-8 mm.), rigid. Surface smooth, brown, variegated with darker, imperfect zones or blotches. Context firm, but punky, dark isabelline (clay color). Pores minute (1-1½ mm. long), darker than the context, rigid. Spores not found.

This is a frequent species in the East, absent from American tropics. It is hardly well named, although the darker blotches have a laccate effect. It was named by Berkeley as a form of zonalis, afterward put in "Fomes" by Cooke. Bresadola at first adopted this name, and so endorsed the "type" of Polyporus rhodophaeus at Leiden (cfr. Letter 36). Afterward he took Léveillé's name. It is abundant in Philippines, and quantities have been distributed under Berkeley's name.

SPECIMENS.—Ceylon, T. Petch; Japan, A. Yasuda, M. T. Yoshinaga; Philippines, E. D. Merrill (seven collections).

Compare cinereo-fuscus, rhodophaeus.

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POLYPORUS ANEBUS.—Pileus thin, 5-8 mm., rigid, sessile, imbricate. Surface hard, smooth, brownish yellow, no distinct crust. Flesh pale yellow (cinnamon-buff), firm, dry, fissile. Pores minute, 2-3 mm. long, slightly darker than the flesh. Hyphae pale yellow. Setae, none. Spores subglobose, 3-4 mic., hyaline, smooth.

This is a frequent plant in the East and Africa, but does not occur in the American tropics. The pale yellow flesh becomes darker in the old museum specimens. The following three are forms of this plant, all similar as to context, pores, etc., but differ a little as to surface.

SPECIMENS.—Madagascar, Henri Perrier de la Bathie; Japan, J. Umemura; Philippines, E. D. Merrill.

Compare guadalupensis, Marianus, serpens, subpruinatus.

Fig. 676.
Polyporus bicolor.

POLYPORUS BICOLOR (Fig. 676).—This is the same as anebus except that the pileus develops a reddish stain; and in some collections the surface is entirely dark reddish. Some collections are partly stained and partly not. We think it is only a form of Polyporus anebus, or perhaps a condition.

Compare oblinitus, sanguinarius, subpictilis, subrubidus, vulneratus.

POLYPORUS SANGUINARIUS.—In the original sense this is a synonym for bicolor, but we use it for convenience for a color form when the pileus is entirely and distinctly and uniformly reddish in color. It is rare in the Philippines, and from there only as far as we know. The surface color is not a stain as it is in bicolor, but the natural color. The context and other features are same as in anebus, bicolor, and pruinatus.

SPECIMENS.—Philippines, E. D. Merrill, sent labeled "Polystictus sanguineus, Linn," as labels are liable to be confused.

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POLYPORUS PRUINATUS (Fig. 676).—Same as Polyporus anebus excepting the surface is not smooth, but rugulose. We think it is not well designated as pruinose. We have never noticed this rough form to have the red stain that marks the preceding plant. The original collection was from Mauritius, and all my specimens are of African origin.

SPECIMENS.—South Africa, W. T. Saxton; Madagascar, Henri Perrier de la Bathie (five collections). Some of the latter are typical, some much thinner than the type.

POLYPORUS RUGOSO-SPORUS.—Pileus sessile, imbricate, thin, rigid. Surface hard, slightly rough, light brown, with deeper brown stains. Flesh light yellowish brown, firm, dry, hard. Pores small, 5-6 mm. long, darker brown than the context. Spores cylindrical, 4 x 12 mic., straight, hyaline, distinctly rough.

This is a single collection from Congo Belge, collected by Edouard Luja. In its macroscopic characters it closely approaches Polyporus anebus. The spores are different and unusual.

Fig. 676.
Polyporus pruinatus.

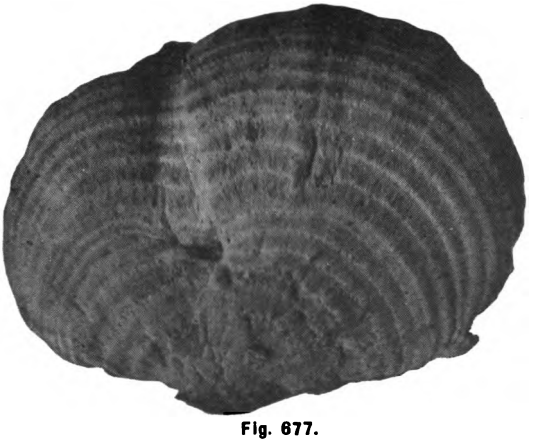

Fig. 677.
Polyporus Zebra.

POLYPORUS ZEBRA (Fig. 677).—Pileus dimidiate, applanate (5 x 7 x 1-1½ cm.) Surface smooth, greyish brown, strongly marked with narrow, concentric, raised zones. Flesh thin, 3-4 mic., isabelline, with a faintly olivaceous tint, hard, firm. Pores minute, round, 8-10 mm. long, with concolorous tissue. Spores not found, doubtless hyaline.

We collected this plant in Samoa ten years ago. It has been referred for us to Polyporus lignosus, Polyporus supinus, and Polyporus hemileucus, three different species, in our opinion, and it is neither. While the stripes of the pileus are not as different in color as those of a zebra, they are as prominent, and conspicuous.

SPECIMENS.—Only the types, Samoa.

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SECTION 92. CONTEXT ORANGE-RED. SOFT, SPONGY.

POLYPORUS ALBO-LUTEUS (Fig. 678).—Pileus light weight, soft, spongy, triquetrous, usually largely resupinate. Surface orange, dull, no crust. Flesh orange, spongy, light, fragile. Pores very large, 2-4 mm. 2-3 cm. long, with angular, irregular edges, sometimes prolonged into teeth. Hymenium white (?) at least in dried specimens. Spores hyaline, 4 x 10, cylindrical, straight.

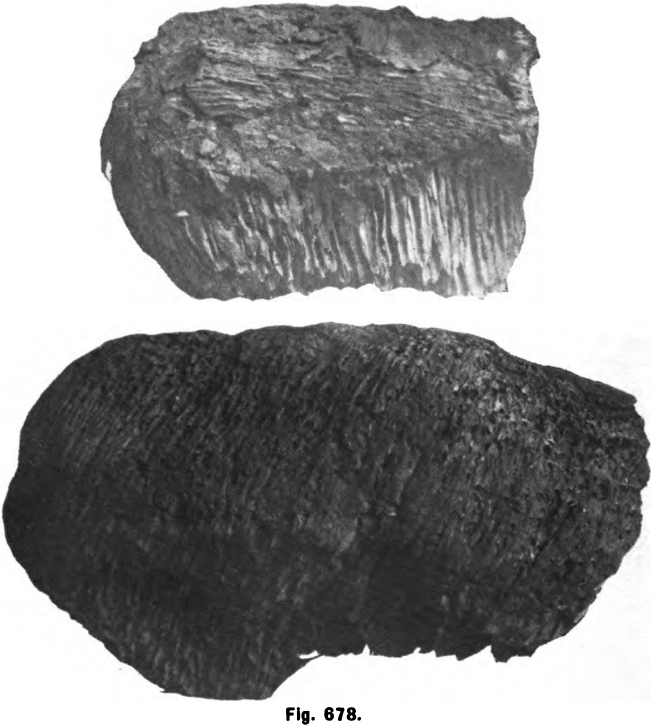

Fig. 678.
Polyporus alboluteus.

This plant grows on coniferous trunks, and has been abundantly collected in the Rocky Mountain region. But one collection is known east of the Mississippi, viz., Peck, in the Adirondacks (cfr. Myc. Notes, p. 379). Ellis saw it first and called it Fomes (sic) alboluteus (sic). It is neither a Fomes, white nor yellow. As the name "aurantiacus" is preoccupied, orange colored plants have serious trouble in getting appropriate names, and very few of them succeed (cfr. Fomes albomarginatus (sic), Letter No. 36). As Polyporus "alboluteus" (sic) is a most remarkable, brilliant plant, it is a pity it was not given a suitable name.

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SPECIMENS.—Colorado, C. H. Demetrio, E. Bethel, E. Bartholomew, L. O. Overholts; Montana, James R. Weir; Utah, A. O. Garrett. Since this has been in type, we have received a specimen from Dr. C. H. Kauffman, collected in Michigan.

POLYPORUS AURANTIACUS.—Pileus orange with rough, fibrillose surface, no crust. Context bright orange, soft, spongy, thin. Pores medium, soft, irregular, with unequal mouths, disposed to split. Color of tissue, pale orange. Spores hyaline, 3 x 5, smooth.

This is a rather rare plant in the northern United States, usually on hemlock wood. We have collections, however, on birch and maple. It is well named from its bright, orange color. It occurs in Finland, but is apparently very rare in Europe, for all the specimens in the museums are Karsten's exsiccatae, No. 311, under the name Trametes fibrillosus. This is a prior name, but there is something crooked in its history. Karsten described the plant in 1859 (not 1882, as misstated) as having context "fulvus," and admitted (1876) that it was the same as Polyporus vulpinus, a brown species. He distributed (Exsic. 311) an orange plant under this name, but whether he substituted another species or whether he described a bright, orange plant as being "dark ferruginous, fulvus," we do not know; but in neither case has his work much claim.

It occurs also in Japan. A collection from Ikeno was misreferred by Hennings to Polyporus Shiraianus. This is the only Japanese collection known.

SPECIMENS.—We have collections from Massachusetts, Idaho, Vermont, Newfoundland, Michigan, Canada, and Washington.

Compare crocicolor, fibrillosus.

SECTION 93. CONTEXT VINACEOUS OR PURPLE.

POLYPORUS DURUS.—Pileus sessile, thin (4 x 6 x 1 cm.), drying hard and rigid, and usually incurved. Color of dried specimens very dark, almost black with purplish tinge. Surface smooth, dull, no distinct crust. Context hard, rigid, 2-4 mm., dark brown with faint purplish tinge. Pores minute, hard, 3-5 mm. long, with dark, atropurpureus mouths and tissue. Hymenial cells hyaline. Spores globose, hyaline, 3 mic.

This is not an unusual species in the East, but does not occur in American tropics. We have seen it from Africa, Java, Philippines, Australia, Ceylon. We made one abundant collection in Samoa. The color of the dried plant, dull, violet black of Ridgway, would ordinarily be called atropurpureus. We do not remember the color of the fresh plant, but our impression is that it was more brown. We do remember that we associated it with Polyporus gilvus, which we would not have done had the color been that of the dried specimens now. Junghuhn named it from Java. Berkeley called it Polyporus cartilagineus (a senseless name) and also Polyporus Testudo.

SPECIMENS.—Madagascar, Henri Perrier de la Bathie; Samoa, C. G. L.; Philippines, E. D. Merrill; Ceylon, T. Petch.

Compare cartilagineus, Testudo, also Fomes melanoporoides, and Fomes ponderosus.

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POLYPORUS VINOSUS (Fig. 679).—Pileus thin, usually sessile, dimidiate, dark vinaceous color (dark, livid purple). Surface smooth, concolorous. Context thin, brittle, hard, more brown than the surface. Pores minute, dark, concolorous with the surface. Spores (B) allantoid, 1½ x 4-4½, hyaline.

Fig. 679.
Polyporus vinosus.

This is a frequent species, and widespread in the tropics. We have noted specimens from Cuba, British Honduras, New Guinea, Malay, Java, the Philippines. From the United States, we made one collection in Florida, and at New York Gardens there is one from Harper, Georgia. It has always a thin pileus, usually curling in drying. Generally it is sessile with a broad attachment, but at Kew is a collection from West Africa that is petaloid and has a short, lateral stipe.

SPECIMENS.—Java, J. P. Mousset; Ceylon, T. Petch; Congo Belge, Edouard Luja; Madagascar, Henri Perrier de la Bathie; Philippines, E. D. Merrill; Japan, A. Yasuda; Florida, C. G. L. The specimen from Congo Belge is much thicker, larger, and has paler context than other collections.

Compare badius, Mollerianus, tristis.

POLYPORUS MOLLERIANUS (cfr. Stip. Pol., p. 147) is a petaloid form of Polyporus vinosus, agreeing with the sessile form exactly as to color, context, pores, etc., but spathulate and stipitate. There is a collection at Kew. It is only known from Africa.

TRAMETES VIOLACEUS.—Pileus thin, applanate, rigid, sessile, often decurrent behind. Surface dull, smooth, no distinct crust, pale brown, soft to the touch, minutely velvety. Context firm, hard, slightly punky, pale violaceous color (dull Indian purple). Pores minute, rigid, hard, dark, purple tissue, 1-1½ mm. long. Spores not found, doubtless hyaline.

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This is based on a collection from A. J. T. Janse, Natal, Africa. We call it Trametes, where we think it should be classed, but mention it in the section of Polyporus on account of its general resemblance to the Polyporus species included. It closely resembles Polyporus durus, but is of a lighter shade of color, and of a different texture.

SECTION 94. CONTEXT OLIVE.

Fig. 680.
Polyporus supinus.

POLYPORUS SUPINUS (Fig. 680).—Pileus dimidiate, imbricate, often resupinate behind, usually with a thin margin. Surface, when fresh, white, dull; when young, minutely pubescent, soft to the touch; when old often spotted with red spots behind. Context dark olive (Dresden brown), hard, firm. Pores minute, 2-4 mm. long, with isabelline tissue and adustus mouths. Spores 4 x 8 mic., oblong, hyaline, smooth, with granular contents.

A frequent southern species. It occurs in southern United States, West Indies, and South America. It does not occur in the East. In Florida it was the most common Polyporus we found, and we gathered it in abundance, usually on oak. When fresh it is usually white, sometimes with reddish spots behind; and rarely the surface is entirely reddish brown, when it becomes Polyporus Valenzuelianus. We also found it entirely resupinate over a large extent, with no sign of a pileus. There is no trouble in recognizing the fresh species, from the peculiar dark olive (as most people would call it) context. In the old herbarium specimens this feature is masked; not only the surface of the pileus becomes dark, but the context loses its peculiar olive tint, and the entire plant becomes somewhat concolorous. It is very hard to recognize the old, historical material in the museums of Europe. The next species is in reality the same as this, but it is much rarer and as it grows is quite distinct. The usual plant is white, with sometimes individuals that are red spotted behind, but the collection that we made of the next form had the pileus entirely reddish, even the young specimens. We have been puzzling for a name for this common plant for years. The tradition in American mycology was that it was hemileucus, and so

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it is, in part only; and an immaterial part, it seems to me, as the types described under this name are evidently Trametes cubensis. The type of Polyporus supinus is in the British Museum. It is so old and changed that we were never sure about it, although we examined it a number of times. At one time we called this species Polyporus subolivaceus, doubting it being supinus. Berkeley usually referred it to Polyporus plebius var. cubensis, and Thiessen lists it as Polyporus plebius. It has no relation to this species.

A careful reading of Fries' Nov. Symb. leaves no doubt in our mind now as to the plant that Fries had, for we have puzzled long, as Fries evidently puzzled, over the conflicting colors that collections show. Cooke discovered that the plant was a Fomes, and Morgan determined Fomes pomaceus as being Fomes supinus (sic). Murrill improved on Cooke's idea by calling it "Fomitella." Although faint indications of pore strata are sometimes seen, we are satisfied it is not a Fomes.

SPECIMENS.—Brazil, Anna Brockes, Rev. Rick (four collections), Rev. F. Thiessen, Gustave Peckolt. It is very common in Brazil, also abundant in Florida. We have many specimens from Florida.

Compare cubensis (var.), guadalupensis, sordidissimus, also Fomes rudis, subfulvus.

POLYPORUS VALENZUELIANUS.—This is the same as Polyporus supinus as to peculiar, olive context and all characters, excepting that it has a reddish brown surface, not white. That it is other than a marked color form we do not believe, but it is biologically distinct, for we noted when growing that they did not intergrade much.

It is much rarer in Florida than the type form. Montagne called it Polyporus valenzuelianus, which Berkeley referred to Polyporus supinus; and Fries suggests that Polyporus supinus was "discolored" specimens. We use the specific name as understood by Berkeley, Fries, and Montagne as to Montagne's original determination and the specimens he sent to Berkeley and Fries. But the specimen of Polyporus valenzuelianus listed by Montagne from Weddel, Brazil, is a different plant, with colored spores. The type in Montagne's herbarium from Cuba is not strongly spotted, but the specimens he sent Berkeley and Fries are, and we take it in this sense.

Compare Fomes sordidus.

POLYPORUS SUBOLIVACEUS.—This has the same context color and is quite close to Polyporus supinus, and the old herbarium specimens can hardly be told apart. Fresh specimens, however, appear quite different. Polyporus subolivaceus is unicolorous, with a uniform pileus, surface, and context color, while in Polyporus supinus there is a strong contrast between the context and surface color. We have received from Brazil a specimen agreeing exactly with Berkeley's description and, no doubt, with his specimen when it was fresh. This species was named from Cuba, but must be quite rare there, as we noted no specimen in the abundant West Indies specimens at New York. Our note on Polyporus subolivaceus, Letter 39, Note 26, and many of our previous determinations, we believe to be in error now

SPECIMENS.—But one collection, from Rev. J. Rick, Brazil.

TRAMETES PROTEA.—Pileus thin, ½-1 cm., applanate, sessile, imbricate. Surface smooth, subolivaceus. Context dark olive (Dresden brown of Ridgway), hard, punky. Pores small, paler tissue than the context, decurrent behind. Spores not found, white without doubt.

It is a question whether this is a Trametes or a Polyporus. Its relations are surely with the preceding plants. In fact, it is so close to Polyporus subolivaceus that the more punky context and larger pores are the only difference.

SPECIMENS.—South Africa, I. B. Pole Evans; Deutsch Ost Africa, H. L. Hammerstein; Samoa, C. G. Lloyd.

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SECTION 95. CONTEXT BROWN. SETAE NONE.

POLYPORUS GOETHARTII.—Pileus dimidiate, concolorous, large specimens 15 x 9 x 2 cm. Surface brown, glabrous, marked with concentric, raised zones. Context dark brown (antique brown), hard. Pores minute, 4-6 mm. long, concolorous. Setae, none. Spores unknown, doubtless white.

At Leiden only this species is found, having been recently named from Java specimens. It is marked with raised zones, which are rare in Polyporus and common in Fomes. What causes these in the plant, we do not know, but in Fomes these zones are formed by the annual layers overgrowing and overlapping. As Polyporus Goethartii is only known from one collection, this character may be unusual in this specimen.

Fig. 681.
Polyporus melleofulvus.

POLYPORUS MELLEOFULVUS (Fig. 681).—Pileus dimidiate, pale brown (clay color). Surface subtomentose, soft, rough, concolous, no distinct crust. Context dry, hard. Pores medium, 3 to mm., round or irregular, with thin walls. Spores (not found) teste Romell, 2-3 x 5-7, hyaline.

This is known only from type collections. There is a cotype at Berlin. Romell put it in the "genus" Chaetoporus, which he abandoned in recent papers, but the plant has no "chaete." There are projecting hyphae which are sometimes encrusted, but nothing suggesting setae.

POLYPORUS SUBSTUPPEUS.—Pileus thin, applanate, with brown, rough surface. Context thin, soft, 3 mm. (now) brown. Pores small, round, 2-3 mm. long, dark brown (now), almost black. Setae, none. Spores globose, hyaline, 4 mic. Known only from types at Kew from Brazil, which are none too good. The Australian determinations are evidently different. We are not sure but that Polyporus sub-

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stuppeus is more closely allied to Polyporus fumosus than to this section. The dark color of context may be only a color change, in which event it would go with fumosus.

POLYPORUS SUBRADIATUS.—Pileus unicolorous, sessile, rigid (3 x 4 x ½ cm.), with thin margin. Surface velvety, becoming glabrous, rugulose, no distinct crust. Flesh hard, firm, yellowish brown (antique brown). Pores minute, concolorous. Setae, none. Spores hyaline, 3 x 5-6, smooth.

We have two collections of this from Professor A. Yasuda (No. 49 and 196). To the eye it is similar to Polyporus radiatus, same general size, color, texture, but is quite glabrous. It differs by absence of setae and narrower spores.

POLYPORUS PSEUDOFRUTICUM.—Pileus dimidiate, ungulate. Context dual, the old hard and ligneous, the young soft and spongy. Surface soft. Color of old context cinnamon brown, of the new growth, yellow ocher. Setae, none. Spores 2½ x 3½, hyaline, smooth.

The old context is harder, but the young is of the same spongy nature as Polyporus fruticum. Were it not for the hyaline spores, it would be referred to fruticum. This is probably a better Fomes, and so is Polyporus fruticum at times. Notwithstanding the discrepancies of spore colors, I think it is better classed as a form of Polyporus fruticum. Specimen from Rev. C. Torrend, Bahia, Brazil.

SECTION 96. CONTEXT BROWN. SETAE PRESENT.

POLYPORUS GILVUS.—Pileus sessile, applanate, thin, ½-1½ cm., often imbricate. Surface brown, even, usually slightly rugulose. Context hard, firm, of the growing plant often bright gilvus (yellow ocher), varying to brown (cinnamon brown) when old. Ordinarily the context is more brown than yellow. Pores are small, round, 3-10 mm. long, with brown tissue and mouth. Setae abundant, slender, sharp, projecting 12-16 mic. Spores hyaline, 3½ x 4-5, smooth.

Polyporus gilvus is a most abundant plant in the United States, where it was named at an early date by Schweinitz. It grows on all kinds of frondose wood, but has a special liking for beech. Usually the old beech logs are densely covered with it. It would seem, from the abundant specimens that have reached Europe, that it is equally common in the West Indies, South America, Pacific Islands, Australia, East Indies, Japan, Philippines, India, and seems particularly common in Africa. It is strangely rare in Europe, and we have never seen but two European collections. One we have from Rev. L. Navas, Spain, the other, collected by Quélet, is in Fries' herbarium. The occurrence of the plant in England is based on an old tradition, not authentic at the start, and not at all probable.

In the United States, mycologists have always correctly known the plant. Not one of them ever discovered that it was a "new species." That, however, was reserved for Cooke, who, we believe, was the only one to discover Polyporus gilvus to be a new species in its native haunts. Ellis got mixed on one of its forms. It has not been so fortunate elsewhere, however. From the tropics and foreign countries Polyporus gilvus, and its forms, has been named about twenty times, and few new species hunters of any prominence have failed to find it. It was an especial favorite with Berkeley and Léveillé, each having discovered and named it five different times. Cooke impartially distributed those "species" through Fomes, Polyporus, Polystictus,

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and Trametes, and there are few sections in Saccardo that are not enriched by one or more of them.

ILLUSTRATIONS.—No colored figure published. Sowerby, t. 195, here referred, is more probably Fomes conchatus.

SPECIMENS.—United States and Canada, over a hundred collections. We have also the following from foreign countries: Spain, Rev. L. Navas (1); Samoa (2); Ceylon (4); Mexico (1); Japan (2); Mauritius (3); Madagascar (4); Congo Belge (2); South Africa (6); India (2); Australia (1); Argentine (1); Brazil (9).

Compare Balansae, breviporus, caesiellus, endozonus, fucatus, holosclerus, homalopilus, inamoenus, Lawrencii, omalopilus, pertusa, purpureofuscus, rubiginosus, silaceus, subgilvus, sublilacinus, also Fomes bambusinus.

Forms.

Polyporus gilvus is so common and so constant in the United States that we hardly notice any variations in it. It changes some in color with age, but no one would hardly venture a variety, much less a species, on the slight difference. In the tropics it does depart into some pronounced forms, but most of the foreign collections could not be told on comparison from the "type" form. All the "forms" have the same "structure" spores, setae, context color, etc., but differ slightly in external features. The following nine species are in reality but forms of Polyporus gilvus. The last four forms are thin and could be referred to Polystictus.

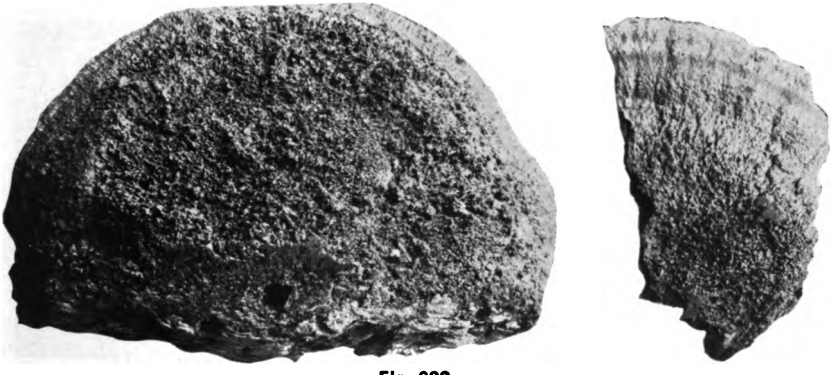

Fig. 682.

Polyporus scruposus.

POLYPORUS SCRUPOSUS (Fig. 682).—Perfectly smooth forms of Polyporus gilvus rarely occur, but the form that is called Polyporus scruposus is excessively rough, with little tubercules and granules. It was named from the United States, but these rough forms are more common and strongly marked in Africa than in the States. As it grades into the type form in all degrees, it is difficult to maintain even as a form. Fries named it, but the only type found is at Kew.

SPECIMENS.—South Africa, A. J. T. Janse (typically "scrupose"), Dr. O. Pazschke; India, G. H. Cave; West Australia, Dr. F. Stoward (strongly "scrupose"); New Caledonia, Museum Paris.

Compare crocatus, isidioides, trachodes.

POLYPORUS CARNEO-FULVUS.—The surface color of Polyporus gilvus is usually brown. In warm countries a form occurs with a reddish brown surface, named as above. It hardly merits a distinct name.

SPECIMENS.—Samoa, abundant. It was the usual form in Samoa.

Compare cupreus.

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POLYPORUS INAMOENUS.—This is an indurated subfomes form of Polyporus gilvus. Sometimes it shows distinct pore layers. Polyporus gilvus takes this form more commonly in warm countries, but we have specimens from California and Dakota.

SPECIMENS.—California, L. C. C. Krieger; South Dakota, Dr. Brenckle; Uruguay, Dr. F. Felippone; Australia, E. Jarvis; New Caledonia, Museum Paris; Mauritius, P. Koenig; India, H. Val. Ryan.

Fig. 683.

Polyporus Hookerii.

POLYPORUS HOOKERII (Fig. 683).—Hooker made a collection in India which is an extreme form of Polyporus scruposus, to which Berkeley referred it as a "var." The pileus, instead of being simply tubercular, rough as in the American and African forms, is strongly fibrillose-strigose (Fig. 683). If standing alone, it would be a strong species, but intermediate collections connect it with the ordinary form of Polyporus scruposus. There is also a specimen of this plant at Kew from Australia, and we have it from Mexico.

SPECIMEN.—Mexico, Dr. S. J. Bonansea.

Compare stabulorum.

POLYPORUS SPURCUS.—Pileus thin, applanate, rigid, with a thin, rugulose, glaucous crust, distinct from the context. Context cinnamon brown, hard. Pores minute, with darker mouths, concolorous as to tissue with the context. Setae abundant, slender. Spores hyaline, small.

Polyporus spurcus is known only from the type at Paris from Guadaloupe. With the same context color, setae, and spores as Polyporus gilvus, it differs in having a distinct, glaucous crust. It surely is not Polyporus licnoides as recently referred, nor is it the same as Polyporus callimorphus as recently referred, which is licnoides. There is a possibility that when Polyporus spurcus is better known it will be found to be a Fomes.

POLYPORUS ILLICICOLA.—Named from Japan, is a thin, soft form of Polyporus gilvus, which when young is a bright, yellow color that it loses with age. It was named and misdescribed by Hennings as having spores 8-10 x 13-16. They are 3 x 3½. We have also the same form from Japan.

SPECIMENS.—Japan, Dr. A. Yasuda.

POLYPORUS MARCUCCIANUS.—Pileus applanate, with soft, brown surface. Context dry, soft, light, floccose. Pores small, round. Setae slender, numerous. Spores globose, hyaline, 4-4½ mic.

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Marcucci distributed this (No. 70) years ago as "Polyporus fulvus Scop.", it being one of six different plants that have been referred to this name. It came from Southern Italy or one of the Mediterranean islands, and is the only collection known. It is close to Polyporus gilvus, has same context color, pores, setae, and spores, but the texture is light, and floccose, and the plant is flexible, not hard and brittle and rigid like Polyporus gilvus.

Plants of the gilvus alliance are strangely rare in Europe, and this is probably a modification of the African flora where Polyporus gilvus is common.

Fig. 684.
Polyporus licnoides.

POLYPORUS LICNOIDES (Fig. 684).—This is the most pronounced, tropical form. It is thin (type 2 mm.), more flaccid, and tends toward Polystictus. In the most highly specialized "type" form there are smooth, reddish zones on the pileus, but they are present and absent on the same collection. Polyporus licnoides in its "type" forms is more common in tropical America, but specimens so referred are collected in the East.

SPECIMENS.—Brazil, Rev. Rick, Rev. F. Theissen, Gustavo Peckolt; Florida, C. G. Lloyd; Ceylon, T. Petch; India, G. H. Cave; Madagascar, Henri Perrier de la Bathie; Central America, Chas. L. Smith; Congo Belge, Hyac Vanderyst.

Compare Balansae, callimorphus, connexus, Ramosii, subtropicalis, also Fomes bambusinus.

POLYPORUS AURICULIFORMIS.—This is a rare form of Polyporus licnoides, with minutely pubescent or velutinate surface. It was originally from Java, and is compiled in Saccardo as "Poria." The single "type" at Leiden is of doubtful authenticity, but it surely is not "resupinate." We have a specimen from Rev. H. Vanderyst, Congo Belge.

POLYPORUS GILVOIDES (Fig. 685).—Pileus very thin, with floccose, pubescent surface. Substance soft, a Polystictus excepting as to its affinities. Color, context, pores, setae, spores as in Polyporus gilvus. This is a Brazilian form, so named by Hennings, and he gave it a good name, which is the reason we adopt it. Patouillard named the same thing, a year or two earlier, Polyporus pseudoradiatus, from specimens that were old. We see no occasion to call it "false radiatus," for it has no resemblance and precious little analogy to Polyporus radiatus. Recently an "asetulose form" has been announced from the Philippines. We have our doubts of the occurrence of "asetulose forms" of any of the Polyporus gilvus group.

Compare pseudoradiatus.

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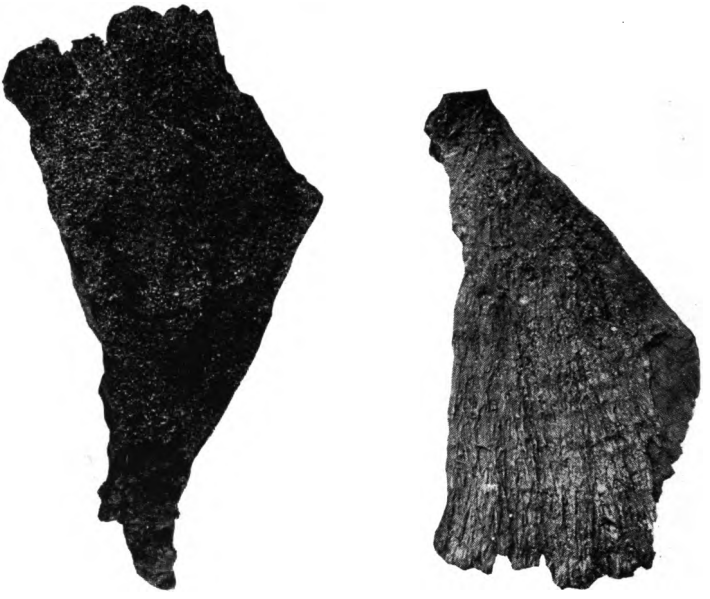

Fig. 685.
Polyporus gilvoides.

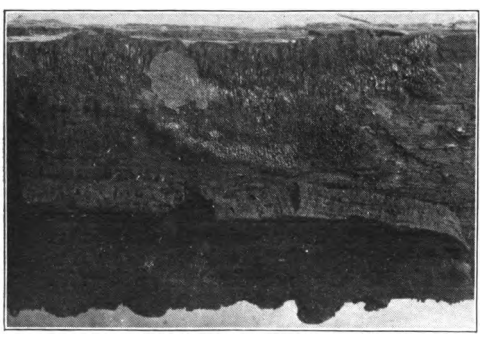

Fig 686.

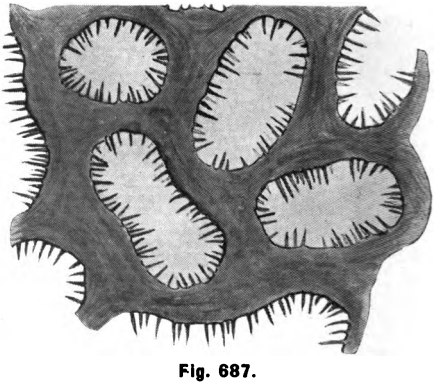

Fig. 687.

Polyporus setosus. Fig. 687, pores enlarged to show the abundant setae.

POLYPORUS SETOSUS (Fig. 686).—Pileus thin, reflexed. The plant is largely (often entirely) resupinate, or with imperfectly developed pilei. Context color brown (cinnamon). Pores small, round, with thin wall. Setae (Fig. 687) excessively abundant, slender, projecting 20-30 mic. Spores not found.

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Mr. Weir finds this plant on Larix in Idaho. It is most excellently named, for such abundant setae are found on no other species. Several collections that Mr. Weir sent us are entirely resupinate. In context, color, and setae the plant is close to Polyporus gilvus.

TRAMETES FARCTA.—Pileus thin, cinnamon brown (4 x 6 x 1 cm.), with sulcate, soft surface. Context concolorous, thin, but represented by the old stuffed pores very light weight. Pores large, sinuate, ½-1 mm., almost reaching the crust; but the old pores are filled with brown hyphae, so that they appear as context. Setae slender, sharp, very numerous. Spores not found, no doubt hyaline.

Rick distributed this (No. 108) as "Fomes cereus Berk.", which is some error, apparently, for no such species was published as far as we can find. Surely it is not Poria cerea from India, and there is nothing "waxy" about it, but just the contrary, or we would retain the misname. Technically it is a Fomes, but on account of its light weight, nonligneous tissue, and general nature we should class it as Trametes. Its affinities are with Polyporus gilvus, and it is very close to Polyporus setosus.

POLYPORUS BAMBUSINUS.—Pileus general size, shape, and color as Polyporus gilvus. As to texture and surface, closer to Polyporus licnoides. Setae same. Spores hyaline, subglobose, 4-5 mic. The plant bears also conidial spores of a different type, colored, smooth, and measuring 6-8 x 8-12 mic. Abundant specimens are known in Patouillard's herbarium from China, where it occurs on the bamboo.

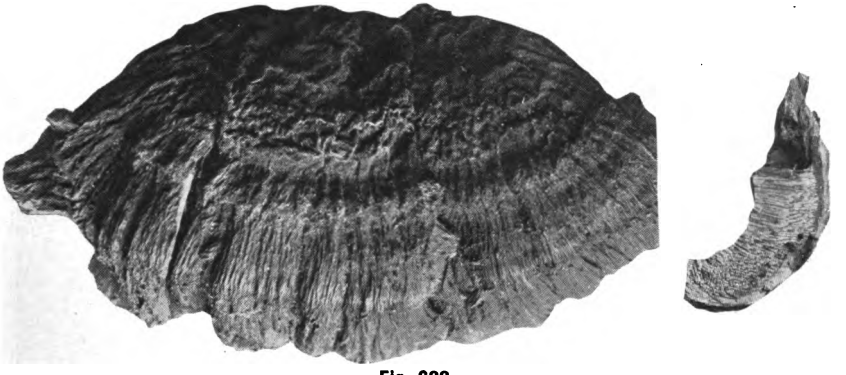

Fig. 688.

Polyporus radiatus.

POLYPORUS RADIATUS (Fig. 688).—Pileus dimidiate, sessile, triquetrous, with thin margin. Surface minutely velutinate, at length strongly rugulose, radiate. Flesh hard, dry, yellowish brown. Pores concolorous, small, about ½ cm. long, with mouths that glisten silvery when turned to the light. Setae rare, short, thick. Spores hyaline, 4-5 x 5-6.

This is a frequent plant in the United States and Europe, usually on alder. It is easily confused with Polyporus cuticularis, having about the same general shape and color, but easily distinguished by the spores. There is an erroneous tradition extant in regard to the color of its spores. Patouillard and Murrill each put it in a "new genus" based on "colored" spores. We never had a spore print, but abundant

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hyaline spores are shown by the microscope. Cooke places it in Polystictus, and it is so found in most of our text books. It is out of place in Polystictus.

Persoon named it Polyporus alneus, and this name, which is most appropriate, should be retained. Persoon cites with doubt Sowerby t. 196, called Boletus radiatus; and Fries, our legal authority, not wishing to use Persoon's name, substituted Sowerby's name on the sacred principles of priority, on which "sacred principle" one can always rely when he wishes to change the name of the man from whom he gets his information. But Sowerby t. 196 does not represent Polyporus alneus either as to habitat, color, or surface, and is far more probably a figure of Polyporus cuticularis. Still we call our plant "Polyporus radiatus Sowerby," and the forms of "Science" are at least duly observed.

SPECIMENS.—Many, from United States and Europe.

Compare aureonitens, brunneus, cucullatus, scrobiculatus.

Forms.

There occurs rarely in the United States a very thin, yellow form with same setae and spores. We have a specimen from Geo. E. Morris, Massachusetts, on maple.

Compare Polyporus subradiatus, in Section 95, a similar plant to Polyporus radiatus, but without setae.

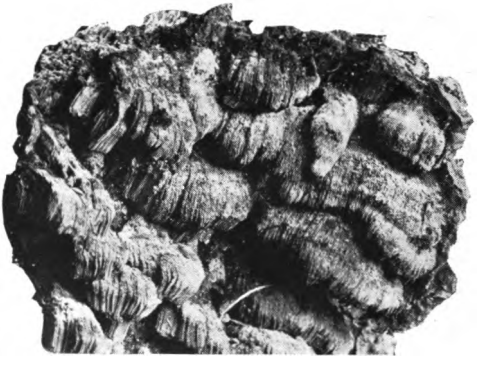

Fig. 689.

Polyporus nodulosus.

POLYPORUS NODULOSUS (Fig. 689).—While agreeing with Polyporus radiatus in every essential character, and exactly the same under the microscope, this has numerous small, imbricate pilei not inaptly described as "nodules." It grows on beech, and is only a beech form of Polyporus radiatus.

ILLUSTRATIONS.—Fries' Icones, t. 187. It shows the manner of growth, but the color will not do at all. Rostk., t. 56 (as Polyporus polymorphus). Picture is not bad.

Compare fuscolutescens, polymorphus.

POLYPORUS DRYADEUS.—Pileus sessile, often large, a foot even in diameter, 2-3 inches thick. Surface with a thin but distinct crust, brown. Context medium, soft, reddish brown color (Sudan brown), with a sheen. Pores small, round, subconcolorous, 1-2 cm. long. Setae straight, rare, 8 x 40 mic. Spores globose, smooth, hyaline or pale colored, 7-8 mic.

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This is not a rare plant in France, England, and Central Europe, growing usually on oak. It is said to be found also on beech and elm. It is quite rare in more northern localities, and in Sweden Fries in his latest work records it as "v. s.," though in one of his earlier works he mentions seeing it. Romell has only lately found it around Stockholm. In the United States we have about the same history. Schweinitz misrecords it, and the older generation hardly knew it. It is rare in our Northern and Eastern States, and only two years ago Professor Peck found it for the first time. Long tells us that it is frequent in the Southwest, also that it is a root rot and usually develops near the base of the tree. It has been noted from early days for exuding drops of water, as shown in our figure, Mycological Notes, p. 491.

The spores of Polyporus dryadeus as found in specimens are usually hyaline or with the faintest trace of color, but we have a recent collection from Hawaii with spores pale, but distinctly colored. We believe now that the spores are hyaline when young, pale colored when mature, and hence the plant should be entered in the next General Division in Section 100 B. (cfr. Note 232, Letter 56.)

ILLUSTRATIONS.—Bulliard, t. 458, very good. Hussey, t. 21, not so good. Fries miscites it as t. 26, and both Murrill and Saccardo demonstrate the thoroughness of their "investigations" by copying the mistake. Hartig's figure is a misdetermination for Polyporus corruscans, and the other plant disease men, Comes, Istvanffi, and Tubeuf, have probably copied it. We have not looked up their figures.

SPECIMENS.—Mostly from Europe, a few only from United States. Recently received also from Dr. J. B. Cleland, Australia, and C. N. Forbes, Hawaii.

Compare pseudo-igniarius.

The following plants have been considered in Section 35, p. 160 of our Stipitate Polyporoids, on account of their evidently close relationship to Polyporus circinatus.

POLYPORUS TRIQUETER.—Pileus half dimidiate, (3-4 cm. thick), reduced at the base. Surface and context yellow ochre. Pores darker. Surface tomentose, soft. Context softer and spongy near the demarkation. Pores small, round. Setae large, hooked. Spores 3 x 5, hyaline (?), probably immature.

We take this in the supposed sense of Fries, teste Romell (Mr. Romell found it rare on Pinus sylvestris). It is a rare form in Europe, and has the same color and microscopic features as Polyporus circinnatus, of which it is probably only a form. I do not know it from the United States. I think it is not triqueter of Persoon (cfr. cuticularis).

SPECIMENS.—France, Dr. Pierrhugues; Austria, Dr. F. v. Hohnel; Sweden, L. Romell.

POLYPORUS LEPORINUS.—Exactly the same as the preceding plant in every feature excepting that it is thin, (less than a cm. thick), and there is a stronger contrast between the firm lower and soft upper flesh. On this account it was called Polyporus dualis by Peck. It is a very rare plant both in Europe and the United States.

SPECIMENS.—Sweden, L. Romell, fine specimens; C. G. L., effete; Bohemia, Dr. Fr. Bubak; Canada, C. G. L.; Michigan, Dr. C. H. Kauffman.

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POLYPORUS ADUNCUS.—Pileus dimidiate, 1 cm. thick, unicolorous brown. Surface with coarse, brown, hispid hairs. Context brown. Pores small, round, brown. Setae few, large, 8-10 x 60-75 mic., deeply colored, with peculiar, hooked points. Spores hyaline, smooth, 4 x 5-6 mic., not guttulate. Spores are a little larger than Polyporus leporinus, but otherwise it is exactly the same, excepting the surface, which is quite different. It is very rare, only known from one specimen from E. K. Abbott, Monterey, Cal., and grew on the roots of a pine tree. To the eye it resembles Polyporus cuticularis, but has no relation to it otherwise.

FOURTH GENERAL DIVISION.

SPORES AND CONTEXT COLORED. SPORES NOT TRUNCATE.

All previous sections have hyaline spores.

SECTION 97. CONTEXT PALE (WHITE?) OR ISABELLINE. SETAE NONE.

POLYPORUS BERNIERI.—Pileus sessile, dimidiate, large, 10-50 cm. Surface brown, strigose, hispid, at length black. Context yellowish, isabelline, very light weight, spongy. Pores large, 1-2 mm., angular, with uneven, angular mouths. Pore tissue concolorous. Setae, none. Spores pale colored, 6-7 x 8-10, abundant, smooth.

The type is at Paris. It came from New Caledonia. It is noteworthy for its light weight and color.

SPECIMEN.—Cotype, Museum Paris.

POLYPORUS DIELSII.—This is a very large species, said to be "40 x 40 cm." It is only known from a piece at Berlin, and came from Australia. The spores, in abundance, are large, 7 x 10, pale colored, smooth. The pores are brown, but the flesh is much paler and may have been white when fresh. The hyphae of the pore tissue is pale, the hymenial elements dark. This is a reversal of what is usually found in the polypores. The plant has a distinct brown cuticle. It is a very curious species and imperfectly known.

SECTION 98. CONTEXT YELLOW. SETAE NONE.

Both species known in this section are thin plants.

POLYPORUS RHEICOLOR.—Pileus imbricate, thin (2-3 mm.). Surface even, minutely tomentose, dark brown. Context scanty, thin (1-5 mm.), bright yellow. Tubes minute, 1-2 mm. long, brown, darker color than the context. Spores subglobose, 4 x 4-5, deeply colored, smooth.

This is a species of the American tropics only, as far as known. It is represented in the museums from Cuba, Brazil, Central America, etc., mostly by single pileoli, but we judge it grows densely imbricate as distributed by Rick. A specimen we have proceeds from a common base, but we think it is unusual. The context is usually thin (1 mm.), but we have a specimen from Rev. Torrend that has flesh 5 mm. thick,

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and is a true Polyporus. The bright yellow flesh is a marked character of the species. It has been classed as Polystictus, and is the only polypore with colored spores likely to be so classed on account of its thinness. The plant has also been named Polyporus Splitgerberi and Polyporus sulphuratus, neither a very suitable name for it.

SPECIMENS.—Brazil, Anna Brockes, Rev. C. Torrend.

Compare hinnuleus, Splitgerberi, sulphuratus.

POLYPORUS CITREUS has been known since 1860 only from a little type at Kew, from Australia, not much bigger than your thumb nail. It is thin, yellow, and similar to Polyporus rheicolor, but the spores are very pale, with only the slightest tinge of color.

SECTION 99. CONTEXT BROWN. SETAE NONE.

A.—Plants very minute.

POLYPORUS PYGMAEUS.—Pileus minute, erumpent from branches, flabelliform. Color brown. Pores large in comparison to size of plant. Spores, teste Murrill, 3½ x 5, colored, abundant.

This is a unique little species, and disputes with Polyporus poculus the honor of being the smallest Polyporus known. It is about 2 mm., only, in diameter. Palmer collected it in Mexico and sent it to Ellis, who distributed it as Trametes pusilla. Patouillard evidently received a specimen, for he lists it as "Xanthochrous pusillus, Ellis," Xanthochrous being a new genus that he had "discovered" with yellow spores. We therefore suppose its spores are colored, though the material being scanty we did not examine them. But one collection is known of this little species, which is at the New York Gardens. It is not recorded whether it has setae or not. The name Polyporus pusillus being preoccupied, my friend McGinty changes it to Polyporus pygmaeus.

Compare pusillus.

B.—Pores large. Similar to Hexagona and has been so classed.

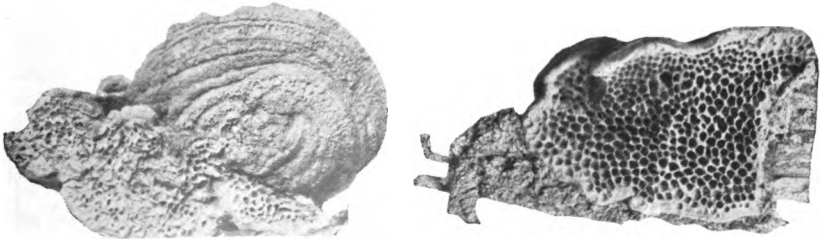

Fig. 690.
Polyporus decipiens.

POLYPORUS DECIPIENS (Fig. 690).—Pileus sessile, dimidiate, triquetrous, unicolorous, dark brown. Surface brown, hard, tomen-

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tose, ridged. Flesh hard, firm, brown, descending into the pores. Pores rigid, trametoid, 4-8 mm. long, round or elongated, large, 1-2 mm. Setae, none. Spores abundant, large, elliptical, 8 x 16 mic., deeply colored.

This is an Australian species, unknown elsewhere though apparently not rare in Australia. We have seen several collections of it. It was named by Berkeley, Hexagona decipiens, but it is not a typical Hexagona as to pores, and is anomalous in having colored spores, which no true Hexagona has. Its proper classification is as Trametes, but the same objection, colored spores, holds here. Properly it is a "new genus" (Phaeotrametes McGinty) on the same principle that the other similar "new genera," "Phaeocyphella" and "Phaeoradulum," were manufactured.

SPECIMENS.—Australia, Albert Green, Dr. J. B. Cleland, G. H. Adcock.

C.—Pores small.

POLYPORUS GLOMERATUS. — Pileus yellowish brown, densely imbricate, "forming a mass ½ foot long and two to three inches thick." Surface minutely tomentose, appearing smooth to the eye. Context thin. Pores greenish yellow, small, angular, 8-10 mm. long, tissue concolorous. Setae, none found, but imbedded in the pore tissue are large, deeply colored bodies. Spores abundant, subglobose, 5-6 mic., pale colored, transparent, guttulate.

The above description is partly taken from Peck, who found the plant on a maple tree and named it forty years ago. Peck was unaware of the peculiar structure when he named the plant, and attention has not heretofore been drawn to it. It is a rare plant. Little pieces of the original collection are at Albany and at Kew, but these were all that were known until 1914, when Dr. Kauffman made two collections. It grew on a maple log, resupinate for several feet, also pileate on a stump. The new pore layers form over the old layers, so that it might be classed as Fomes, but the old layers are dead and we think it an annual. From the little specimens preserved, Cooke, Murrill, and myself have all referred it to Polyporus radiatus or Polyporus nodulosus, but when we come to examine the structure we find it a very different thing. Imbedded in the hyphae tissue are large (12-15 mic. thick) deeply colored, pointed, seta-like hyphae such as occur in Fomes pachyphloeus (cfr. figure 600, page 261, Synopsis of Fomes). Peck was unaware of this peculiar structure when he named the plant, and attention has not heretofore been drawn to it. We know no other American plant with this structure. We have similar plants with same peculiar structure from Mexico (Polyporus Rickii).

SPECIMENS.—A liberal supply from Dr. C. H. Kauffman, Michigan, who is the only one who has collected the plant in recent years. Since above was written, however, we have learned that Morgan found the plant around Cincinnati, and we have his specimen.

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POLYPORUS RICKII.—Recently named from Brazil, is an abnormal Ptychogaster form of some species similar to Polyporus glomeratus. It has abundant, colored, conidial spores, all sizes and shapes. Ptychogaster Cubensis is suggested as being the same thing. I hardly feel that the subject is much cleared up by the publication of such species.

Fig. 691,
Polyporus nilgheriensis.

POLYPORUS NILGHERIENSIS (Fig. 691).—Pileus thin, dimidiate, dark argus brown. Surface with dark brown, subzonate velumen. Context thin, concolorous. Pores minute, round, 2-3 mm. long, with concolorous tissue and dark mouths. Setae, none. Spores globose, 4 mic., pale colored.

Polyporus nilgheriensis has been referred to as a Fomes. While the pores have a layer effect, we believe this is due to a union of confluent pilei and that the plant is better classed as a lignescent Polyporus. It is a very distinct species only known from a few collections from India, and named originally by Montagne. It has been most badly confused, and in the cover before me are 29 specimens so named, only one, the cotype, having any resemblance or relation whatever to it. There was a cotype in Hooker's herbarium, which Berkeley for some reason evidently thought was wrong, for he marked it "non," and so determined another species from India in Hooker's herbarium. He passed the mistake on to Fries, who enlarged on it by so referring Polystictus pergamenus from Mexico. Then Patouillard fell into the trap, but Murrill escaped, by what fortunate chance we are unable to surmise. Polyporus nilgheriensis is given in Saccardo as growing in India, Carolina, United States, British America, Cuba, and Central America, all wrong excepting the first.

Compare Garckeanus.

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POLYPORUS SPADICEUS.—Pileus thin, rigid, 2-3 mm. thick. Surface smooth, brown, with narrow, raised, hard, concentric zones. Context brown, thin. Pores minute. Setae, none. Spores abundant. globose, 4 mic., colored.

To the eye this is the same as Polyporus substygius, and our figure 698, page 364, might represent either. The absence of setæ and abundant spores mark the difference. The type at Kew is a single specimen from India. We have it abundantly from Africa. The species is quite close to Fomes fastuosus.

SPECIMENS.—Dr. G. Zenker, Kamerun, Africa.

Compare Fomes halconensis.

POLYPORUS CARYOPHYLLUS.—Pileus applanate, sessile (6 x 8 x 1), unicolorous, dark reddish brown (chestnut). Surface soft, velvety, sometimes forms a pad 1-2 mm. thick, but disappears or becomes indurated on old specimens. Flesh hard, fibrillose, concolorous. Pores minute, concolorous, 3-5 mm. long. Setae, none. Spores globose, 3½-4 mic., deeply colored.

Cooke gave the plant a good name which well expresses its color. There are abundant types from Brazil at Kew. It is also found in Brazil by Rev. Rick. The plant is a Polyporus, not Fomes as found in Saccardo.

SPECIMENS.—Brazil, Rev. J. Rick, Rev. F. Thiessen.

POLYPORUS PUBERTATIS (Fig. 692).—Pileus sessile (3 x 6 x 1½ cm.), unicolorous dark brown (Verona brown). Surface minutely pubescent, soft to the touch. Flesh concolorous, hard, slightly punky. Pores minute, round, 3-5 mm. long, with concolorous tissue and mouths. Setae, none. Spores abundant, 3 x 5, elliptical, very pale colored.

Fig. 692.
Polyporus pubertatis.

Based on a collection from Prof. A. Yasuda, Japan (No. 38). It is unknown to us otherwise.

POLYPORUS WILSONII.—We know this only from our notes, in New York Gardens. It came from Honduras. Context and pores bright rhei color. Shape like Polyporus gilvus. Surface soft, velvety, pubescent. Setae none. Spores 3 x 4, pale colored. It impressed us as something very distinct. It is only known from the type collection.

POLYPORUS MELAENUS.—Pileus thin, sessile (described 10-20 cm. broad). Surface smooth, black. Context buckthorn brown, hard, brittle. Pores much

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darker than the context, minute. Setae none. Spores globose, large, 10 mic., pale colored.

This was named from Java (Zoll. 2058), but the only specimen I have noted is in Patouillard's herbarium. It is rigid and brittle and is not a Polystictus, as compiled in Saccardo, nor has it any relation to caliginosus as stated.

SECTION 100. CONTEXT BROWN. SETAE PRESENT.

A.—Surface tomentose or hispid.

POLYPORUS HISPIDUS.—Pileus sessile, usually large, 8-12 inches, and 1-2 inches thick. Surface strongly hirsute, hispid. Flesh at first soft, at length dry and fragile. Tubes small, ⅓-½ mm., and very long, from 2-3 cm.; fragile when dry, when old, larger and torn. Setae rare and uncertain. Spores abundant, globose, 8-10 mic., deeply colored, smooth.

This is the largest species in this section, and is said to reach 18 inches. It is quite frequent in Europe, growing on frondose wood, apple, ash, and oak in preference. When in its prime it is a striking fungus, bright orange as we remember the only time we ever gathered it. It is described as dull orange or sienna. It turns black in drying and in situ. We are told by Sowerby that it "turns black and rots." The plant has in abundance a yellow coloring matter easily soluble in water. The herbarium sheets are usually stained with it. This coloring matter could be fixed and used in dyeing were it bright enough or abundant enough to warrant. The director at Kew had some experiments made along this line at one time. In the United States, Polyporus hispidus is rather rare and of a southern range.

ILLUSTRATIONS.—Boudier, t. 158, is the best; Gillet, very good, but rather pale color. Others cited are Bulliard, t. 210 and 493, the latter the better; Bolton, t. 161; Greville, t. 14; Hussey, t. 29 and 31; Sowerby, t. 345; and a number of others in unimportant works.

SPECIMENS.—A number, both from Europe and United States. Our collections are mostly from Florida and New Jersey, and the plant has an evident southern distribution. Lea found it around Cincinnati. We never did.

Compare Bankeri, endocrocinus, Hausmanni, macroporus.

POLYPORUS CUTICULARIS (Figs. 693 and 694).—Pileus applanate, dimidiate, imbricate. Surface tomentose with appressed, brown hairs, zonate when young. Context varying from 3-10 mm. thick, hard, fibrillose, ferruginous brown (Sudan brown). Pores small, varying in size, angular or irregular, 5-8 mm. long, with concolorous tissue. Mouths often stuffed or overgrown, when fresh strongly glancing. Setae very scanty, sometimes not found at all, straight. Spores abundant, globose or subglobose, deeply colored, largest 7 x 7-8, many smaller, 4-5 x 5-6.

This grows in the greatest abundance in the United States in the fall of the year, preferably on beech or maple, often densely imbricate over large areas of the log (Fig. 694). It is frequent also in France on beech logs, and on comparison the European plant can not be told from the American. When it first develops, which is always late in the season, it is soft and watery, and the surface is beautifully zoned.

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It loses these characters when old, but it usually is of short duration. It is infested by a large, round worm that quickly destroys it. It is a curious fact that we have never noted this particular worm in any other species of fungus. Polyporus cuticularis bears, unfortunately, a most inapt name, and its early history was badly confused. Bulliard gave a badly colored figure of it (t. 462), so poor that Persoon, who knew the plant well, did not recognize the figure of Bulliard. Persoon called it, evidently, Polyporus triqueter. Fries' description seems to apply to the plant, and he took Bulliard's name, but Fries' specimen at Kew of Polyporus cuticularis is labeled

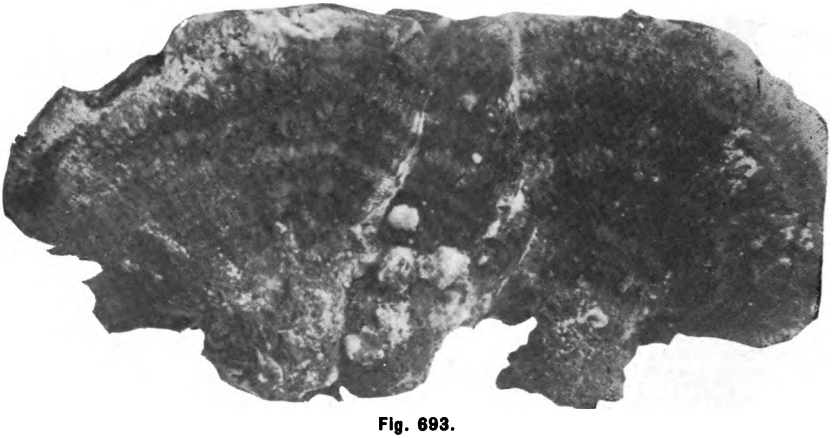

Fig. 693.
Polyporus cuticularis.

Trametes rubiginosa. The plant has been generally known both in Europe and America under the name Polyporus cuticularis. All American mycologists have had it right, until Murrill came along and spun a fairy story about it being Polyporus perplexens of Peck (cfr. Myc. Notes, p. 378). Professor Peck always called the plant, correctly, Polyporus cuticularis. We do not know why the plant was called cuticularis. It has no application to it. In Bulliard's figure the flesh is shown thin, 2 mm., and we supposed Bulliard's name meant that the plant has thin flesh like a cuticle. If so, it is a delusion, for the flesh is rarely less than ½ cm. thick, and often a cm. or more.

ILLUSTRATIONS.—No figure seems to have been published excepting Bulliard's badly-colored plate, t. 462.

SPECIMENS.—Many, from United States and Europe. The Japanese analogue we list under the following name.

Compare fusco-velutinus, Jamaicensis, Ludovicianus, perplexus, rubiginosus.

POLYPORUS MIKADOI (Fig. 695).—The Japanese form of Polyporus cuticularis, and perhaps, too close to the European plant. It has the same context, color, and general appearance, but is a smaller plant (4 x 2 x 2½ cm.), with smaller spores (3-4 x 4-5 mic.), and no setae found. It seems constant in Japan, and we have five collections (cfr. Letter 43, p. 3).

SPECIMENS.—Japan, T. Yoshinaga (No. 7), A. Yasuda (Nos. 6, 75, and 112), J. Umemura (No. 59).

POLYPORUS RHEADES (Fig. 696).—Pileus sessile, dimidiate, subglobose, or ungulate, often imbricate. Surface tomentose, velutinate, with short, fine, brown hairs. There is at first developed a

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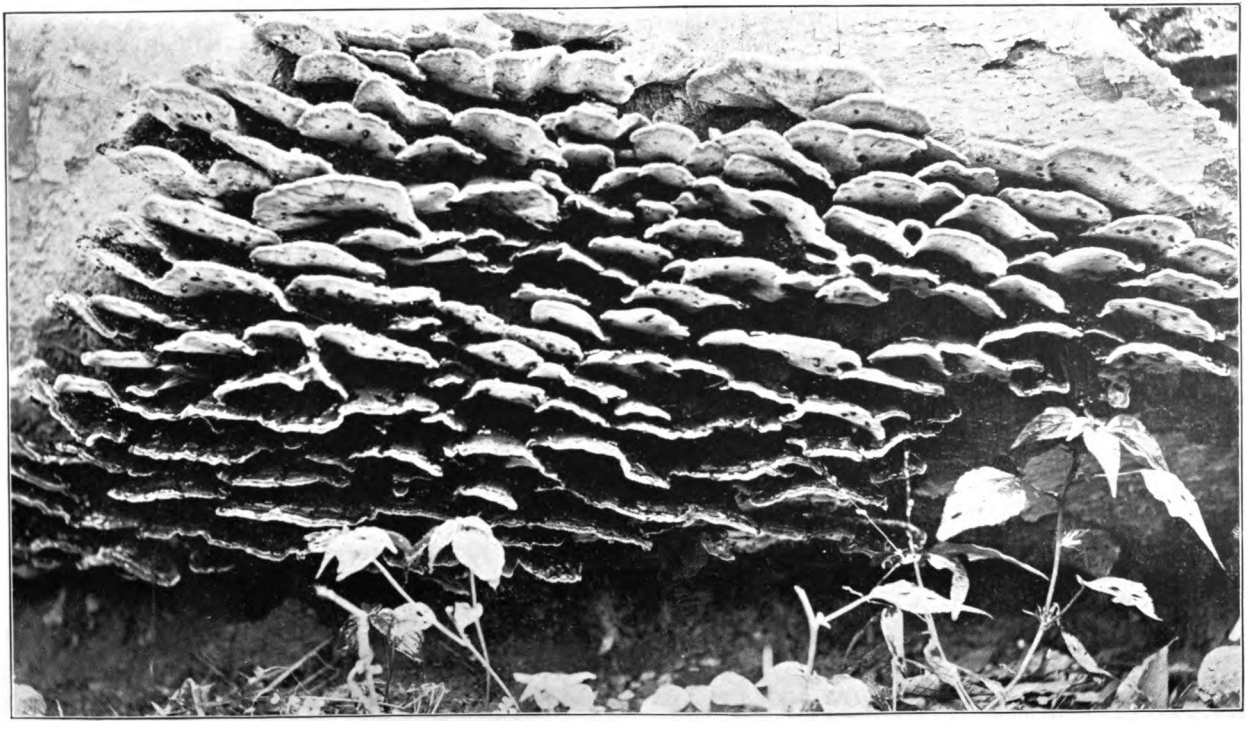

Fig. 694.

Polyporus cuticularis. Photographed, reduced, in situ, to show usual manner of growth.

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mycelial core, hard, amorphous, grumous, dark brown. Flesh fibrillose, ferruginous brown (Sudan brown). At first zonate, soft, watery, and spongy, at length dry, hard. Pores small, round, about 1 cm. long, with tissue concolorous with the context, when fresh the mouths silvery and glancing. Hyphae deeply colored. Setae scanty and rare, often not found. Spores very abundant, globose or compressed globose, 5-6 x 6-7, deeply colored, smooth.

Fig. 695.
Polyporus Mikadoi.

Fig. 696.
Polyporus rheades.

This is not a frequent species in Europe, and has borne a number of names. Its history has been gradually unfolding for us for a number of years, and only lately have we gotten a comprehensive view of it. Originally it was called Polyporus rheades by Persoon from specimens sent him by Tussac, host not known. The specimens are preserved in good condition at Leiden. Then Fries found it on poplar around Upsala and named it Polyporus vulpinus. Then he found it growing soft and spongy on oak, and called it Polyporus corruscans. Then he met old, indurated specimens on oak and referred it to Polyporus fulvus "Scop." He never knew that these three plants were all the same. Bresadola illustrated it as Polyporus rheades growing on Tamarix, which Patouillard changed to Polyporus tamaricis and Bresadola accepted. We have always supposed the plant on Tamarix was a different species, but when we compared them to find the difference, we found them exactly the same.

Polyporus rheades first develops a mycelial core of a different texture and a different nature entirely from the flesh. Hartig first pointed this out under the misdetermination of Polyporus dryadeus. This core is not only characteristic, but peculiar to the species as far as known. (We think "Fomes" graveolens has a similar development, but that is another story.) It is rather a rare plant in Europe. In

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Sweden it grows on poplar and oak. The pileus on oak is usually solitary, large, subglobose. On Populus it is imbricate. It is the same fungus, but the difference is due, Mr. Long tells us, to the resistance of the different wood. On both hosts it is a heart rot, but it has no power to attack the sap wood of the oak, hence the fruit is developed from some accidental opening like a knot hole or a broken branch, and from a small base. Poplar is a softer wood, and the fungus destroys the sap wood, and the fruit develops from a broad base.

In Germany Hartig illustrated Polyporus rheades as Polyporus dryadeus, and his figure is so characteristic, and the account so plain, that the misname is evident. It is probably the basis of Polyporus rheades of German works, though both species undoubtedly grow there. We have found Polyporus rheades at Berlin. In France it does not seem to have been recognized since Persoon's day, until Patouillard called it Polyporus tamaricis. Quélet may have had it right. In America we only know the oak form which Berkeley called Polyporus dryophilus. That also is rare, but more frequent in our Southwest. Morgan collected it, and Long recently had quite an article on it under Berkeley's name. Polyporus dryophilus. We do not think it advisable to use this American name when the plant has several names in Europe, and dryophilus is likely to be confused with Polyporus dryadeus, an entirely different species.

SPECIMENS.—We have the following collections, and have indicated in parentheses the names they were originally labeled. Washington, W. H. Long (dryophilus); Ohio, G. D. Smith (dryophilus), A. P. Morgan (dryophilus); California, S. B. Parish (corruscans), L. C. C. Krieger (corruscans); France, Dr. Pierrhugues, Ernest Olivier, Museum Paris (all as tamaricis); Sweden, C. G. Lloyd (corruscans), L. Romell (fulvus), Erik Haglund (vulpinus); Denmark, Jens Lind (vulpinus); Germany, C. G. Lloyd (corruscans).

Compare corruscans, dryophilus, Friesii, inonotus, tamaricis, vulpinus.

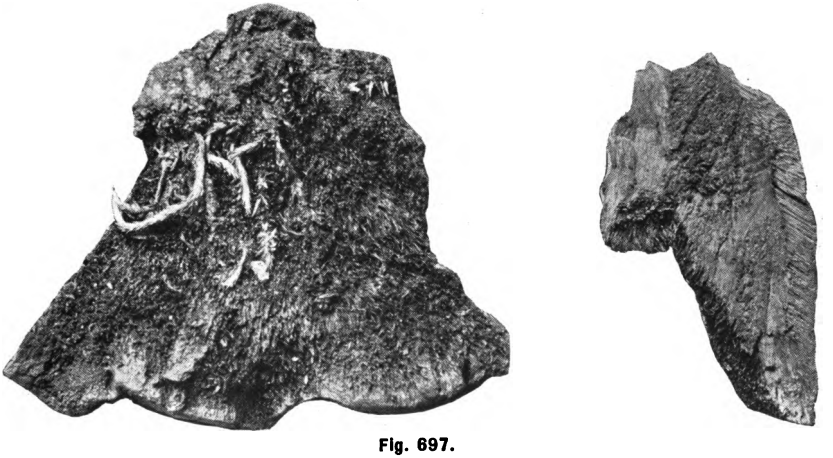

Fig. 697.
Polyporus Farlowii.

POLYPORUS FARLOWII (Fig. 697).—Pileus applanate, wavy. Surface strongly hispid, with suberect, brown hairs. Context hard, ferruginous, brown (antique brown), fibrillose. Pores small, round, firm, concolorous. Setae abundant, straight, projecting 30 mic. Spores colored, elliptical, 2½ x 4½-5.

The type at Kew was collected in Arizona and, according to the label, sent by Farlow to Cooke, who determined it as Polyporus

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endocrocinus. The yellow coloring matter is not soluble in water, but readily so in a potash solution. This must be an unusual species in our Western States. It has never reached us, nor is it found at New York.

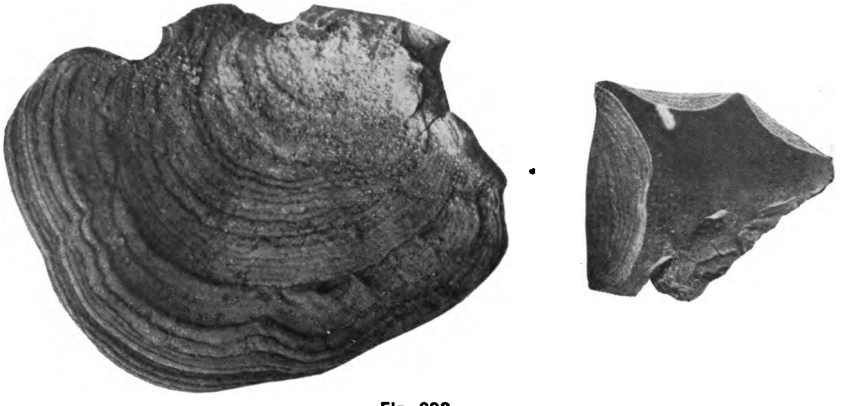

Fig. 698.
Polyporus substygius.

POLYPORUS SUBSTYGIUS (Fig. 698).—Pileus thin, rigid, 2-3 mm. thick. Surface smooth, brown, with narrow, raised, hard, concentric zones. Context brown, thin. Pores minute, hard, concolorous, 1-1½ mm. long. Setae abundant, with slightly thickened base. Spores (?) globose, 3-4 mic., pale colored.

The above notes are made from type at Kew, a single specimen from Ceylon. Others of Cooke's naming, from Malay, appear to us to be the same, though the pileus is evidently velvety. We have also same plant from Philippines (referred to Polyporus gilvus originally). In Samoa our collections are also distinctly velvety, and part of the collection we should have referred to Polystictus tabacinus. Polyporus substygius is quite close to Polystictus tabacinus, and we are not sure they are distinct. Substygius is not flaccid, but hard and rigid; but for all that is probably better classed as a Polystictus (compare also Polyporus spadiceus in Section 99). Polystictus tabacinus is supposed to have hyaline spores, and we are not sure but that Polyporus substygius also has.

SPECIMENS.—Abundantly from Samoa, which seem to run into tabacinus.

B.—Surface smooth, or at length smooth.

POLYPORUS PLORANS.—Pileus sessile, dimidiate, large, 10-50 cm. Surface velutinate, at length smooth. Context reddish brown, light, friable. Pores medium, ½-1 mm., very long, 3-6 cm.,

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concolorous. Setae, none found. Spores abundant, 7 x 9, deeply colored, smooth.

The types are at Paris. It grows in Algiers on poplar, and is evidently of a quick growth. It exudes water drops abundantly when growing, hence the name. The plant is quite close to Polyporus hispidus, but has smaller pores and does not turn black in drying. We have a collection from India that we referred here, but with some doubt.

POLYPORUS TINCTORIUS.—Pileus large, sessile. Surface rugulose, but not hispid. Context deep, reddish brown, said to be at first soft and spongy but becoming compact, hard, brittle. Pores large, with unequal mouths, long (one to two inches), concolorous as to tissue, but the hymenium light yellow, so that a section has a variegated effect. Setae, none found. Spores abundant, large, subglobose, 8-9 x 10-11, deeply colored, smooth, with granular contents.

The plant has an abundant yellow coloring matter, and is used by the natives as a dye. Patouillard has specimens that he purchased in a shop in Algeria. It grows only in northern Africa, and only on Pistacia atlantica as far as known. In general characters it is close to Polyporus hispidus and Polyporus plorans, but the flesh is of a deeper color and much firmer. The surface, as far as I could tell from specimens seen, is not hispid.

POLYPORUS FULVOMELLEUS.—Pileus dimidiate, thick, globose-ungulate. Surface hirsute with coarse hairs. Context light, bright rhei color. Pores small, regular. Setae curved. Spores abundant, colored, 6 x 8.

We only know this species from having seen it in New York Botanical Gardens. There are two collections made in the higher altitudes of Jamaica. In general shape and size it resembles the larger collections of Polyporus fruticum.

POLYPORUS PERTENUIS.—Pileus thin, brittle, imbricate. Surface brown, hispid. Context brown. Pores small, round, concolorous. Setae abundant, slender. Spores scanty, pale colored.

This is a very thin species, known at New York Gardens from two collections, Cuba and Panama. It reminds one of Polyporus licnoides, but is more brittle and has colored spores. The abundant setae were not noted in the original description.

POLYPORUS PATOUILLARDII.—Pileus sessile, applanate, 2-3 cm. thick. Surface smooth, brown, dull. Flesh brittle, hard, faintly zonate, with a satiny luster, dark brown (antique brown). Pores small, round, 1-1½ cm. deep, pale yellowish brown, more yellow than the context. Imbedded in the pore tissue are thick, deeply colored, rigid hyphae (cfr. Fig. 600, p. 261, Synopsis Fomes). Setae scattered, thick, straight, projecting 20 mic. Spores abundant, elliptical, 4-6, pale colored.

Rev. Rick has named and distributed this from Brazil (No. 25 as lineatoscaber) and we have specimens to correspond. It has peculiar, colored flesh, with a luster on the order of Polyporus dryadeus. Many

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polypores have what is called "glancing" pore mouths, when the shade of color appears different according to the angle of the light. This is the only species in which we have noted the same effect on the context. The peculiar setae found in the pore tissue are not found in the context. Other species of this same "genus" (Oxyuris) have these setae in both context and pore tissue.

This plant from the American tropics is only recently known from Brazil, but has lately reached me from E. D. Merrill, Philippines, G. Yamada, Japan, and E. Cheel, Australia.

SPECIMENS.—Brazil, Rev. F. Thiessen, Rev. Rick, P. Pio Buck; Philippines, E. D. Merrill; Japan, G. Yamada; Australia, E. Cheel.

Compare fusco-badius.

Polyporus dryadeus (see page 352) is probably better classed in this section.

SECTION 101. CONTEXT BROWN. LIGHT, SPONGY, FIBRILLOSE. SETAE, NONE.

POLYPORUS FRUTICUM (Fig. 699).—Pileus sessile, often encircling branches, with dual texture, hard pores, and soft, spongy context. Usually the pores measure 2-4 mm., the soft, fibrous flesh 1-2 cm., but more rarely a thin specimen occurs with the spongy flesh not thicker than the pores. Color varies from bright brown (buckthorn brown), when young, to dark brown (Mars brown), when old. Pores concolorous, minute, 2-4 mm. long, with new layers sometimes spreading irregularly over the old ones (then it is technically a "Fomes"). Setae, none. Spores subglobose, small, 3 mic., pale colored.

This species, readily recognized by its dual nature, is frequent in warm countries of both hemispheres. We have noted it from Florida, West Indies, Brazil, Australia, Malay, Philippines, Africa. Sometimes it grows dimidiate on dead logs, evidently, and other times it encircles branches, even the living branches. The original specimen from Cuba (Fig. 700) was thin, and grew on a living branch (Asimina) like a fruit. Berkeley gave it a good name, and it has others—Polyporus chrysites, monochrous (Berkeley, not Montagne), capucinus, pseudo-conchatus, and Weberianus—all synonyms for us. Usually the plant is thick, and we at one time thought the thin collections were different, but on considering the various collections at Kew, we cannot see where the line can be drawn. However, if one wishes to make species on thickness, the thick specimens can be called Polyporus Weberianus, the thin ones Polyporus fruticum, chrysites, or capucinus. At one time we also thought the specimens grown on living branches and encircling the branches were different from those broadly attached to logs. We had to abandon that also.

SPECIMENS.—Florida, G. C. Fisher; Brazil, Dr. J. Dutra, Rev. F. Thiessen, Rev. J. Rick, P. Pio Buck; Barbados, A. A. Evelyn. Our specimens are all from American tropics, but there are several collections at Kew from Malay and other Eastern countries.

Compare amplectus, Biretum, chrysites, corrosus, Weberianus, also Fomes pseudoconchatus.

POLYPORUS MINUTOFRUTICUM.—Pileus very small, orbicular, ½ to 1 cm. in diameter, ferruginous, brown. Coutext soft, spongy, concolorous. Pores darker, minute, the mouths round or elongated, irregular. Spores hyaline, globose, 4-4½ mic. smooth.

This little species is attached to twigs in the same manner as Polyporus fruticum. It has the same texture and color and might be held as a small form, but we think it distinct in its very small size and larger spores. Though the spores appear hyaline, we put it in this section from its close relation to Polyporus fruticum.

SPECIMENS.—Madagascar, Henri Perrier de la Bathie.

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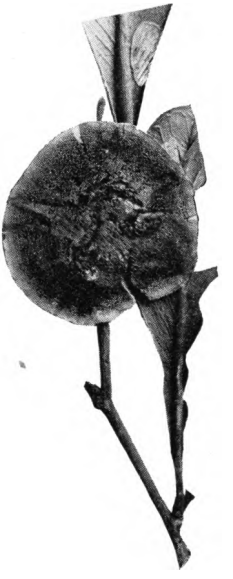

Fig. 700.

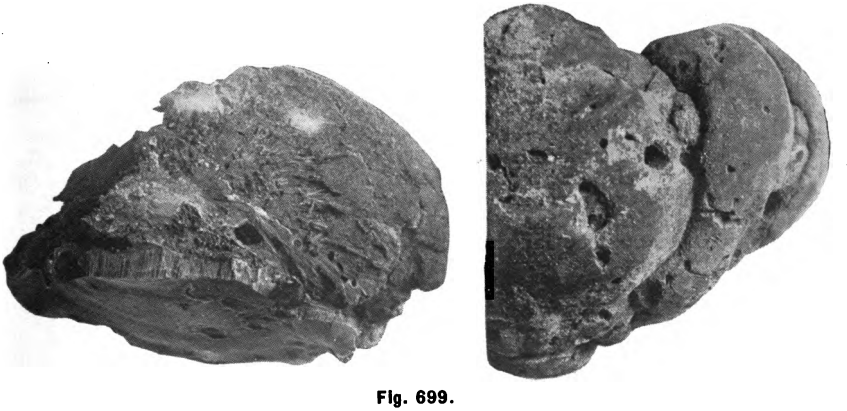

Fig. 699.
Polyporus fruticum.

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POLYPORUS CAPUCINUS (Fig. 701).—Characters all as Polyporus fruticum excepting instead of being a globose plant with thick flesh, and encircling twigs as Polyporus fruticum usually does, it differs in being a thin, applanate plant and dimidiate. The type is so different from the usual form of Polyporus fruticum that were the extreme forms all that were known they could not possibly be referred to the same species. We have seen so many intermediate forms, however, viz., thin plants encircling twigs (as the type of fruticum) and thick forms growing dimidiate, that I should not know how to refer them if I held them different, the pores, spores, context nature, and color being the same. I think there is no warrant in applying the name Polyporus capucinus to the thick, globose form, as has been recently done. If not called Polyporus fruticum, it should be called Polyporus pseudo-conchatus, or Polyporus Weberianus.

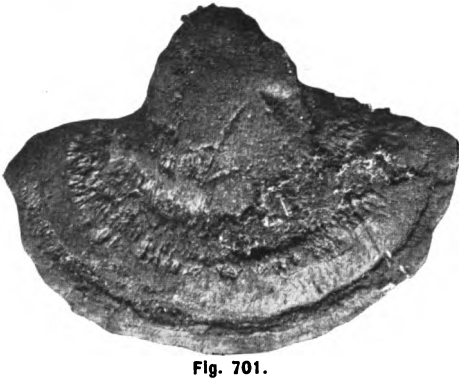

Fig. 701.

Compare chrysites, monochrous, also Fomes Bonianus, subpectinatus.

POLYPORUS CLEMENSIAE.—Pileus dark brown, sessile, dimidiate, fragile, spongy. Pores small, regular, round, ⅓-½ mm., 5 mm. long. Cystidia none. Spores 4-5 x 7, deeply colored when ripe, but many hyaline observed.

This appears to be one of the more rare Philippine species, as it has been scantily distributed. The color and texture of the flesh is similar to that of Polyporus Schweinitzii.

FIFTH GENERAL DIVISION.

POLYPORUS-GANODERMUS. CONTEXT BROWN. SPORES COLORED, TRUNCATE.

The sections of Ganodermus are based on peculiar spore characters as explained in our Stipitate Polyporoids, page 99, and Synopsis Fomes, page 262. Ganodermus are readily subdivided into three sections, as follows:

Stipitate Annuals (see Stipitate Polyporoids, page 102).

Sessile Fomes (see Synopsis Fomes, page 262).

Sessile Annuals, as follows:

There is no section of Ganodermus in the genus Polystictus nor any resupinate species (Poria) known.

SECTION 102. CONTEXT SOFT, SPONGY.

POLYPORUS COLOSSUS (Fig. 702).—Pileus large, 6-8 inches, 2 inches thick, sessile, dimidiate. Surface with a very thin, separable, reddish brown, laccate crust. Context soft, spongy, light weight, pale buff color. Pores small, ⅓ mm., 3-10 mm. long, short in proportion to the thick flesh. Spores large, ovate, 12 x 20 mic., apiculate, distinctly rough.

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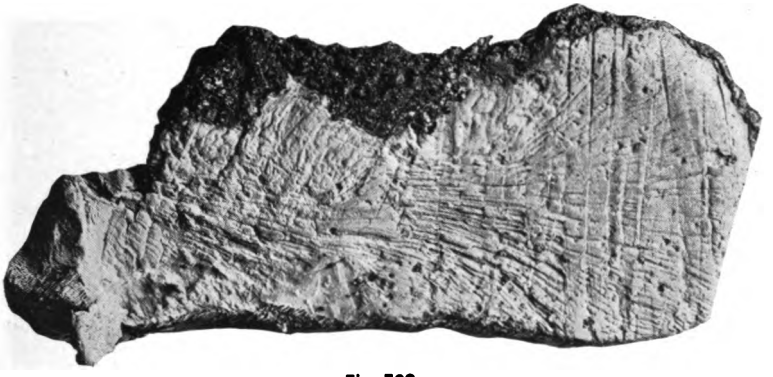

Fig. 702.
Polyporus colossus.

This is a large species of tropical America and Africa, but hardly large enough to be called colossus. Compared to another that grows in tropical America (Polyporus talpae) it is a pygmy. Fries named it "colossus" from the West Indies, but did not give the size of his specimen. The fragment that remains is only a few inches in diameter. At Kew there is a record from Africa, where it has proved more common than in the American tropics, size 9 x 12 x 5 inches. The soft, spongy flesh is characteristic, no other similar Ganodermus known. Evidently it is a plant of rapid growth.

Patouillard first met a conidial form which had in the tissue large, globose, rough, colored, conidial spores with scattered tubercles (see Fig. 703). He called it Polyporus Adansonii. Afterward when he received the normal form with normal spores (Fig. 704), he considered it was the same plant, and we think correctly, and called it Polyporus obockensis. Of course, he had no way of knowing anything about Fries' plant in a jar at Upsala. Massee also discovered it was a new species and called it Polyporus Hollandii. We have already commented on Murrill's bull in discovering this was a "new genus," with "globose, smooth, hyaline spores" (sic). Further remarks under this head are not necessary. How it happened that this fairly common species did not drift into Berkeley we do not know. Polyporus colossus occurs in the American tropics, but is not common, as we have only one collection from this region and there is but one at New York. It is quite common in Africa, however, and we have a collection from India.

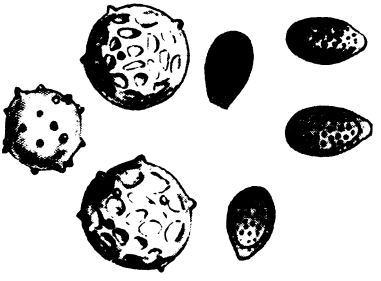

Fig. 703. **Fig. 704.**

SPECIMENS.—Barbados, A. A. Evelyn; Africa, P. Hariot; India, J. H. Irani.
Compare Adansonii, Hollandii, obockensis.

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SECTION 103. CONTEXT FIRM, NOT SPONGY.

The annual Ganodermus-Polyporus forms are, we believe, distinct species from the perennial Fomes forms (cfr. Synopsis Fomes, p. 262), though it is not an easy matter to tell them. They are confusing, also, to distinguish from sessile forms of normally stipitate species like Polyporus lucidus. The species are very similar, and distinguishing characters are hard to find. The subject is also complicated by a flood of new species recently proposed in this section. When one looks up these specimens, they are mostly found to be about the same thing. The following description will apply to them all. Pileus sessile, applanate, with a thin, reddish brown, more or less laccate surface. Context dark burnt umber, varying light. Pores small, round, from 1-1½ cm. long, with white or yellow mouths. Spores obovate, truncate at base, 6-10 to 8-10 x 12-14 mic., smooth, varying to strongly punctate. There have been numerous "new species" named, to all of which the above description will apply. The only thing that can be done is to adopt names for the most extreme forms, and then to refer your specimens to the nearest one. The spores even in the same specimens vary from smooth to strongly punctate, but those with strongly punctate surfaces are said to be "rough."

A.—Spores rough.

POLYPORUS FULVELLUS.—Pileus sessile, dimidiate (6 x 9 x 1½). Surface with a thin, laccate, reddish brown crust. Context firm, hard, burnt umber color, faintly zoned. Pores smooth, round, with white or yellowish mouths when fresh. Spores obovate, 6-8 x 10-12, and distinctly rough.

This species was based on an African plant with rough spores, and it is safe to refer to it any sessile specimen of the lucidus type with rough spores. Saccardo compiled the name in Vol. 9, page 178, and transposed to it a description that he copied in error from another species, which was stipitate. It does not seem to matter much, however, for in the twelve years that have since intervened no one has apparently noticed the difference. We have here referred a similar plant from the American tropics with more globose, rough spores, about 8 x 10. The next form with more yellow pore mouths is practically the same thing, and an earlier name.

SPECIMENS.—Java, Dr. van Leeuwen; Dutch Guiana, Dr. J. Kuyper.

POLYPORUS TROPICUS.—This is a plant the same as preceding, excepting the pore mouths are yellow and spores are more globose and larger—about 10 x 12 we make them. It is only noted from Java, and was recently named oroleucus.

Compare oroleucus.

B.—Spores smooth or slightly rough.

The general description of these "species" is indicated under the general head.

POLYPORUS OERSTEDII (Fig. 705).—Pileus substance rather soft. Context color dark. Surface dully laccate. Pore mouths yellowish. Frequent in tropics, and varying in degree of the laccate surface. The type specimen, in a jar at Upsala, does not bear out the description of substance "durissima."

Compare chromoflavus, Dussii, Fici, rufo-albus.

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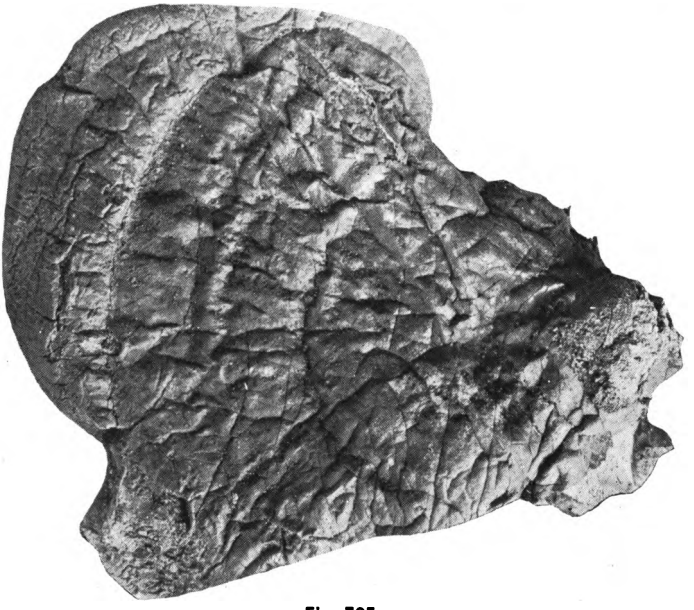

Fig. 705.

Polyporus Oerstedii.

POLYPORUS LIONNETII.—Pileus covered with agglutinate wrinkles. No specimens seen, but species evidently based on the surface characters as shown on Bull. Myc. Soc. 1901, plate 8. It was from Mexico.

POLYPORUS MULTIPLICATUS (Fig. 706).—Pileus marked with narrow, concentric raised zones, dark, laccate. Context dark. The type at Paris is from South America, but we have seen specimens from Tahiti and New Guinea, and have specimens from United States and Egypt that have the same characters. We have seen but one collection from the United States, viz., from F. J. Braendle, Washington, D. C.

POLYPORUS RESINACEUS.—Pileus strongly laccate, context pale. This is very much the same as sessile lucidus, though we do not think Polyporus lucidus is normally ever sessile. It occurs in Europe and the United States. The original was on frondose wood, and the spores were recorded as smooth.

Compare affinis, Martellii, Sequoiae, also Fomes variegatus.

POLYPORUS TUBERCULOSUS.—Same as above, excepting a large, tropical form. It is quite large, two or more feet. We think it is only a large, subsessile tropical form of Polyporus lucidus.

POLYPORUS SESSILIS.—As usually applied it is the same as resinaceus. We have, however, in the United States, an annual, sessile species which we have found on willow. The surface is not so dark, nor strongly laccate, as the preceding plant, and it is broadly attached, never any intimation of a stipe. This we call Polyporus sessilis. We have also a collection with a dull reddish surface that we also here refer with doubt.

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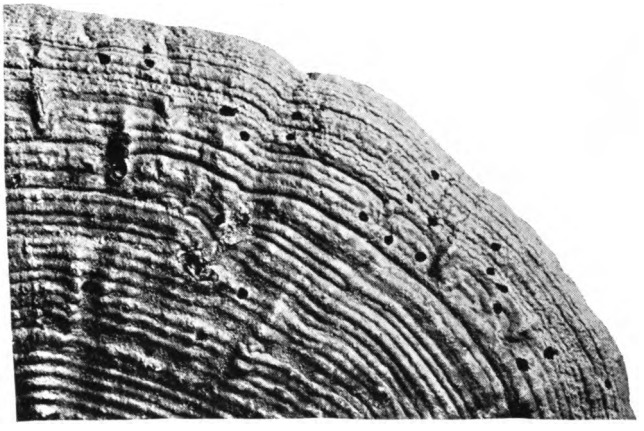

Fig. 706.

Polyporus multiplicatus.

POLYPORUS CUPREUS.—A peculiar, reddish brown, dull surface, to my eye about matching Kaiser brown of Ridgway, is the distinguishing feature of this plant. The type from Africa is still preserved at Upsala. We have a recent collection from E. D. Merrill, Philippines. The spores of the Philippine plant 6 x 12 mic. are longer than those in the type.

POLYPORUS CHAFFANGEONI.—Pileus hard, rugulose, brittle. Crust reddish brown. Pore mouths subconcolorous.

This tropical form we have from Rev. Rick, and only know it from his determination and the type at Paris. Rev. Rick refers it to Polyporus pachyotis, which is otherwise unknown to us.

SPECIMENS.—Brazil, Rev. Rick and Rev. F. Theissen; Bengal, S. Hutchings.

Compare formosissimus, pachyotis.

POLYPORUS MEXICANUS.—Pileus thin, rigid, strongly laccate, subsessile. Similar to Polyporus lucidus as to pileus, but hard, thin, and rigid. We have not seen the type, but have a specimen that answers the "description" in a way.

Mr. Murrill surmises that it is not a Ganodermus, and hence Patouillard made a bull when he so referred it. The plant we have belongs to the section Ganodermus, and we do not question that Patouillard's plant also belongs here. We think Patouillard makes very few errors of this nature.

POLYPORUS POLYCHROMUS.—This is a soft, annual, western plant with pileus very much on the order of Polyporus Curtisii excepting that it is sessile. Surface yellowish, slightly laccate. Context zoned. We only know it from the western United States.

POLYPORUS PHILLIPII.—The type is at Berlin from India. Pore mouths are concolorous with the pore tissue which is the only point of difference we can note from the usual form in this section. We have a specimen from Florida with this feature.

SPECIMENS.—Florida, H. S. Fawcett.

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POLYPORUS NIGROCRUSTOSUS.—Pileus applanate, with a dull, black, smooth crust. Context very thin, pale isabelline. Pores minute (1-1½ cm. long), pale umber, with concolorous mouths. Spores 10 x 12, oval, punctate, the hyaline membrane but little prolonged at base and rarely truncate.

We propose this name for a specimen received from H. Val. Ryan, Dodabetta, India, which we are unable to refer to any of the previous species. When received, we referred it to Fomes nigrolaccatus, but this specimen is an evident Polyporus (not Fomes).

SECTION 104. POLYPORUS (AMAURODERMUS).

The section Amaurodermus of Polyporus are mostly stipitate (cfr. Stipitate Polyporoids, page 110), and the only sessile one to my notice is not certain.

POLYPORUS DAHLII.—Pileus sessile (about 4 x 3 x 2 cm.). Surface dark, reddish brown, somewhat zonate, dull. Context scanty. Pores regular, long, almost reaching crust. Spores globose, smooth, 8 mic., deeply colored.

This is imperfectly known from one specimen at Berlin from New Guinea. It was named in mss. by Hennings, but not published, as far as I know. To the eye, it resembles a Ganodermus, but its spores are of Amaurodermus. All others with similar spores are stipitate, and while this specimen is sessile, it would not be safe to conclude that this is a character of the species.

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SYNONYMS, MISTAKES, SPECIES IMPERFECTLY KNOWN OR NOT KNOWN AT ALL, ETC.

"The shape, size and color of one and the same species of fungus are subject to considerable variation, a fact which has misled many mycologists and caused them to describe already known species as new. Accordingly, many superfluous names of fungi must be eliminated after establishing their identity. Hence our science, suffering surfeit with bad species introduced by error, ignorance or vanity, requires thorough purification."

"Faith in Science is liable to be shaken when it becomes evident how many species already known in scientific works have been described under new names as new species and how many wrongly determined are contained in exsiccatae and museums."

"If nature had spent its millions of years in experimenting, it probably could not have produced as many different species of fungi as have been scribbled together by mankind in one century. In the 22 volumes of Saccardo's Sylloge Fungorum, 73,516 species are named; certainly 1,500 have been named since and thus about 75 thousand species have been published. It is probable that upon thorough revision, many can be eliminated, although it can not be denied that there are also some new good species, not heretofore described."—Hollos.

Of the 75 thousand alleged species that exist I doubt if any individual knows or has known two thousand that are good, and yet there have been several who do not hesitate to discover "new species" from Abrothallus to Zythia. It is the easiest way to pose. When Saccardo covered the field in 1889, 31,927 alleged species were named. In the twenty-five years that has since elapsed, 43,000 additional have been proposed, 42,999 known only to the author, and the mill grinds merrily on.

If the so-called "scientific world" had exerted its utmost ingenuity it could not have evolved a more indefinite, inaccurate or impractical method of naming its objects than has been practiced in mycology. The species of the world are largely the same, there are relatively few of them and they are widely distributed. Mycenastrum Corium, Calvatia lilacina, Polyporus gilvus and many other common species grow in probably every country, and practically every specimen of either of these that has drifted into Europe in the past has been given a new name. There is no way of finding out what they are except to hunt them up where they are preserved, for the description in not one case in a hundred is of any practical use in determining the species. Most of the names that obscure the subject are either based on the scanty knowledge of the "old species" of the party naming them, or on imperfect material that never should have been named. On the following pages we give our opinion of a number of "species" we have seen in the various museums.

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acerinus, Europe, Opiz. Nomen nudum.

acriculus, Europe, Karsten. Seems from description to be same as albellus.

Adansonii, Africa, Patouillard. = at least it is so supposed, a curious conidial state of Polyporus colossus.

adiposus, England, Berkeley = Polyporus undatus probably.

aethiops, India. Cooke. Type something dead and discolored (black). Not a species.

affinis, Europe, Boudier = Polyporus resinaceus.

Afzelii, Africa, Fries. No type exists. Trametes roseola at Paris is endorsed as being this plant but I doubt it. Fries states expressly that the context is not "elasticus" and describes it as "albido" and compares it to Polyporus betulinus.

albo-aurantius, Europe, Veuilliot distribution Roumeguere 2403 is Polyporus amorphus.

albo-gilvus, Cuba, Berkeley = Polyporus flavescens. It is a rare plant, only one collection from Brazil at Paris and one at Kew from Cuba.

albo-incarnata, South America, Patouillard. Unknown to me but described as a Poria. Burt's determination Baker 2483 Nicaragua, is Trametes cubenesis with no possible resemblance to description.

albo-roseus, Europe, Karsten. Unknown to me. From description and knowledge of plants of that region I have no doubt it was Polyporus amorphus.

albo-sordescens, Europe. Romell = Polyporus fissilis.

albostygius, Cuba. Berkeley. As long as it is "only known from the type locality" it is a Poria, at least the type (all known) a piece (now) 1½ x 2 cm. is entirely resupinate. It is something unique though, Subiculum thin. Pores minute, 4 mm. long, pale, probably white when fresh, with black pore mouths. Spores not found by me.

albus, England, Hudson. The original description of Hudson refers probably to Polyporus salignus. Fries' account was apparently made up from pictures, Bull, 433 f. 1 and Price f. 78, neither of which represents plants known to me. Bresadola in Fung. Kmet. refers to Polyporus fissilis of this pamphlet. Although Polyporus albus was originally from England, I have not found it in Berkeley's writings although Price claims to have named his specimens from Berkeley's Outlines. Nor does it occur in any of the modern English compilations.

altocedronensis, Cuba. Murrill = Polyporus leucospongius for me on comparison.

amplectus, Florida, Murrill = Polyporus fruticum. Originally from Cuba, when it crosses to Jamaica it becomes Polyporus corrosus and when it occurs in Florida it becomes Polyporus amplectus. All by the same author. It is rare in Florida. Two collections are at New York and one in our museum.

anceps, United States, Peck. This is only known from the original collection made by Prof. Burt in Massachusetts on Hemlock and named by Peck. I found no type at Albany, but in the New York Botanical Gardens are specimens from Burt. It is a white plant, with hard context, minute pores and spores said to be "globose". Except as to "globose" spores, as to which I can not say, it is as to host and other characters, very much same as Polyporus albidus of Europe.

angustus, Australia, Berkeley. Only known from the type, a single specimen, a resupinate piece of Polyporus tephronotus.

apalus, Europe, Léveillé. No type found and almost passed out of European tradition excepting locally in France, where the specimens are Polyporus fumosus.

armeniacus, Scotland, Berkeley. Based on subresupinate specimens of Polyporus amorphus.

ascoboloides, Australia, Berkeley. Type destroyed.

atrostrigosus, New Zealand, Cooke. Seems from the scanty material to have white flesh and pores and black appressed fibrillose surface. It will probably be recognized some day on comparison. I do not know it well enough to refer it to a section, but probably it will go in Section 82. Polyporus setiger from New Zealand in Section 82 is probably the same plant.

aureonitens, United States, Peck = a young condition of Polyporus radiatus.

badius, Java, Junghuhn = Polyporus vinosus. It does not seem to have been included in Saccardo. It was not published by Junghuhn and the color term (badius) has little application to it.

Balansae, South America, Spegazzini. = Polyporus licnoides, cotypes at Paris. Cotypes at Kew are rather Polyporus gilvus.

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Bankeri, United States, McGinty. Based on a specimen in Schweinitz' herbarium which Banker, our celebrated Hydnum expert, had published as being Hydnum strigosum (sic), and discovered it to be a "new genus" of Hydnaceae (sic). It has more relation to a honeycomb than it has to a Hydnum. In appreciation of such scientific work. Prof. McGinty named it Polyporus Bankeri. The plant is Polyporus hispidus with large split pores.

Biretum, Australia, Kalchbrenner. No specimen found by me in any museum. From the description it is more probably Polyporus fruticum which grows in Australia, and would about impress Kalchbrenner in this way.

Brenningii, South America, Hennings = Polyporus osseus teste Bresadola in a letter. The type at Berlin would be well named "osseus" for it is "hard as a bone."

breviporus, Australia, Cooke = a thin specimen of Polyporus gilvus.

Brisbanensis, Australia, Berkeley mss. = Polyporus ochroleucus.

Broomei, Rabenhorst, Europe. Exsiccatae No. 2004 type = Polyporus undatus.

brunneus, United States, Schweinitz = Polyporus radiatus (cfr Letter 50). I doubt if the little frustule at Kew, however, is the same.

Burtii, United States, Peck. No type exists. Murrill guesses that it is Polyporus adustus, which seems from description to be a good guess.

caeruleus, Europe, Fries' Hymen. p. 549. Based on an old picture ninety years ago (Fl. Dan. t. 1963) and I think it still rests on it, and nothing else. Polyporus caesius, is the only "blue" sessile Polyporus any one knows in Europe, or elsewhere as far as I know.

caesiellus, Borneo, Cesati. Unknown. Guessed by Saccardo to be related to Polystictus versicolor. Not if its pores are "ferrugineus". Probably Polyporus gilvus or something similar.

caesio-coloratus, Europe, Britzelmayr. No one but Britzelmayr ever found any species in Europe like Polyporus caesius except Polyporus caesius.

caesio-flavus, South America, Patouillard. Unknown to me. Except as to spores like Polyporus cretaceus in Section 81. In the process of compiling it in Saccardo, the spores increased threefold in size, from 3-4 x 1-1½ to 10-10½ x 3-4.

caesiosimulans, United States, Atkinson. Unknown to me. I have thought that it is possibly based on Polyporus semisupinus of this pamphlet though the spores do not at all accord. If it is a species, it is surely a rare one in the United States. Morgan records that semisupinus (or nivosus as he calls it) turns green in spots when bruised, and I have noted same thing. This is a character of Atkinson's species.

callimorphus, Africa, Leveille. Type at Paris is Polyporus licnoides. Recent determination from Philippines I think not the same.

candidus, South America, Spegazzini, = Polyporus conchoides which when fresh is "candidus". It becomes "carneus" in drying.

Caprae, Europe, Britzelmayr = nothing known about it.

carneo-fulvus, South America, Berkeley = Polyporus gilvus. I use the name to designate form with slight reddish cast.

carnosus, Europe, Patouillard. Unknown to me and I think only known from a single collection. The description suggests subsessile lucidus.

carpineus, Europe, Sowerby. t. 231 = a yellowish form of Polyporus adustus.

cartilagineus, Celyon, Berkeley = Polyporus durus. Type at Kew. Cooke compiles this in Australian Handbook as having "substance white". It is as black as his hat.

caseicarnis, South America, Spegazzini. Unknown. Seems from description very similar to Polyporus Eucalyptorum.

caseosus, Brazil, Patouillard. White. Flesh crumbly. Section 81 probably, but unknown to me.

castanophilus, United States, Atkinson = Polyporus croceus. So referred by Murrill who had no specimen as far as I found at New York. Long who is quite familiar with Polyporus croceus says Atkinson's plant which he has seen is the same. I have seen no specimen but I do not question it, as the description accords, and Atkinson seems to discover everything that is bright enough color to draw his attention, to be a "new species".

cerebrinus, England, Berkeley. Type a single specimen, surely nothing normal. Endorsed now as being a myriadoporus form of Polyporus amorphus but it is hardly worth guessing at the origin of such abnormal things.

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cervinus, United States, Schweinitz. No specimen in Schweinitz' herbarium, but a little specimen at Upsala which was, after many years, taken by Bresadola in the sense of Polystictus biformis. I doubt it (cfr Letter 50) and the name is a duplicate at any rate, being a Persoonian species.

chromoflavus, West Indies, Patouillard (published?) = Polyporus Oersterii. Species at Berlin.

chrysites, Brazil, Berkeley = Polyporus capucinus. The specimens are bright color but hardly "golden yellow". They are the thin form, corresponding to the types of capucinus in this respect, but for me a thin form of fruticum.

ciliatulus, Europe, Karsten. Very few of his species have ever been recognized by anyone else.

cinctus, England, Berkeley. Teste Bresadola = Polyporus undatus. The types have abundant mycelial growths a kind of "ozonium". There is no account of this growth however, in any of the various other names applied to Polyporus undatus, nor have we ever seen it in connection with this species.

cineratus, Europe, Karsten. Unknown. Said to have white spores. Reads like Polyporus fumosus but grew on Abies. It is curious how many marvelous "new species" Karsten and Quélet found that no one else in Europe ever meets.

cinereo-fuscus, India, Curry = Polyporus semilaccatus discolored.

citromallus, Cuba, Berkeley. A manuscript name attached to a little frustule at Kew. Cooke must have overlooked it when he was "describing" Berkeley's remnants.

comptulus, South America, Berkeley. Only known from very old types in Hooker's herbarium. I believe it to be Trametes cubensis though by no means sure. It is safe to say it will never be recognized with certainty.

Corium, India, Berkeley. Only known from the type and I doubt if it will ever be well known from that. It is white and has a soft flesh. I would not try to give any idea of its characters from such a specimen.

connexus, Brazil, Léveillé. Type (all known) is doubtfully Polyporus rigidus. It has been referred to Polyporus licnoides but surely in error as it has no setae.

contractus, Celyon, Berkeley = the resupinate portion of Polyporus lignosus. It always "contracts" in drying.

corrosus, West Indies, Murrill = Polyporus fruticum. The author got this plant from Florida, Jamaica and Philippines. The first he called Polyporus amplectus, the second Polyporus corrosus, and the Philippine specimen Polyporus fruticum.

corruscans, Europe, Fries. This is the oak form of Polyporus rheades which see (page 362) for detailed history.

crocatus, United States (?) Klotzsch = Polyporus scruposus teste Fries. I have never located any specimen.

crocicolor, mss. at Kew (from Ellis) = Polyporus aurantiacus.

cubensis, Cuba, Berkeley (as var. of plebius) = Polyporus supinus, and this is the name under which Berkeley usually referred it. It has no relation to the plant from New Zealand in Berkeley's herbarium as Polyporus plebius. Nothing very similar to Polyporus supinus grows in the East, nor similar to Trametes plebia in American tropics.

cucullatus, United States, Berkeley. This is known only from the type locality, a couple of little frustules each about size of peas. It has been referred to Polyporus radiatus. I think that is right, or more probably little "nodules" of nodulosus.

cupreus, India, Berkeley = Polyporus carneo-fulvus.

cupreo-vinosus, Brazil, Cooke = Trametes cupreo-roseus and same collection. As Cooke states, it originated in an error in writing the label.

Curreyanus, New Zealand, Berkeley. The type, a very poor specimen, I think is adustus. It is endorsed now as being old dichrous. It is no species at any rate.

decipiens, United States, Schweinitz. Unknown. No specimens preserved. There is a small specimen at Kew (authentic?) which is Polystictus versicolor.

Delavayi, China, Patouillard. Unknown to me. From description may be same as recently named versiporus.

demissus, Australia, Berkeley. Types all known appear to be Polyporus fumosus. Cooke's determination is Polyporus adustus.

digitalis, India, Berkeley. Types all known are very poor. Looks much like Polyporus adustus.

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dissectus, Chile, Léveillé. Type at Paris too poor for comment. Probably a little frustule of Polyporus adustus.

dissitus, Ceylon, Berkeley = Polyporus adustus.

dolosa, Java, Léveillé as Thelephora (sic) = Polyporus conchoides. Type at Paris. While the mistaking of a Polyporus as a Thelephora is about as bad a mistake as one can make, the pores of Polyporus conchoides are so minute, they are liable to be overlooked. I have taken it for a Stereum myself, so I can not criticize too severely others who have done it. Fortunately, I found my mistake before I broke into print.

Dozyanus, Java, Léveillé. No specimens exist.

dryophilus, United States, Berkeley = corruscans of Europe, which is the oak form of Polyporus rheades q. v. for history.

Dussii, West Indies, Patouillard. Unknown to me. Seems close to Oerstedii.

endocrocinus, United Stated, Berkeley. Only known from the type locality (Cincinnati) being based on a young specimen of Polyporus hispidus sent by Lea. Morgan incorrectly referred it as synonym for Polyporus Pilotae which is Polyporus croceus, and Ellis distributed (2508) Polyporus croceus erroneously as Polyporus endocrocinus. Murrill referred the type to Polyporus hispidus, and the reference has since been disputed on the sheet at Kew. I have no doubt Murrill is right. The type does have setae, but setae in all this group of plants are very uncertain characters.

endozonus, West Indies, Fries. No specimen exists. Guessed by Murrill to be Polyporus gilvus, probably correctly.

epigeus, Europe, Link. Specimens in his herbarium Berlin are Polyporus amorphus as now known. This shows the plant was long known before Fries named it.

erubescens, Europe, Fries. I think based on discolored Polyporus mollis and the picture cited Rostk. t. 25 I think also is discolored Polyporus mollis.

erythroporus, Europe, Orth. Unknown to me. Description suggests white Polyporus amorphus but grew on beech.

evolutus, Cuba, Berkeley = Polyporus concrescens.

farinosus, Europe, Brefeld. Compare Brefeld vol. 8 t. 7. Known to no one else. Something abnormal apparently tending towards Ptychogaster. Were it not for the different spores, the habits and appearance of the figure is like Polyporus amorphus.

fuscolutescens, Europe, Fuckel. Said to be resupimate Polyporus nodulosus.

Fendzleri, Cuba, Berkeley. Type resupinate and inderterminable.

fibrillosus, Finland, Karsten. This was published in 1859 (not 1882 as incorrectly stated) and Karsten has since substituted another plant apparently. I have not access to the original publication but in 1876 Karsten admits that it was a synonym for Polyporus vulpinus and described it as "fulvus". Polyporus vulpinus is a brown plant. In his exsiccatae he distributes an orange red plant under this name, which has been called Polyporus aurantiacus by Peck. Karsten acknowledged to Fries that his Polyporus fibrillosus was same as vulpinus, a *brown* species, and I do not know whether he has since substituted another plant or whether he mistook a bright orange red species as being brown. In either case I do not think it has much value.

Fici, Tunise, Patouillard = Polyporus Oerstedii for me. If distinct it is in having a darker crust.

fimbriporus, United States, Schweinitz = Polyporus fragilis, probably (cfr. Letter 50).

flammans, India, Berkeley. Known only from broken type at Kew. It has brown flesh and pores, no setae, and probably hyaline spores. It goes in Section 95. Its manner of growth can not be told from the fragments, but certainly not a Merismus as classed by Cooke, nor is there any application of the name "flammans" to it. It might be recognized on comparison if found again, but the best way would be to call it a "new species" and give it a suitable name.

formosissimus, South America, Spegazzini. Unknown to me except from specimens I have received so named which I think are same as Polyporus Chaffangeoni. Patouillard referred it to Polyporus resinaceus but all three are about the same thing. Bresadola has published it as same as renidens.

Friesii, Europe, Bresadola = the indurated form of Polyporus rheades which Fries called Polyporus fulvus "Scop."

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fucatus, Europe, Quélet = Polyporus gilvus. There is a little cotype at Upsala. It is a remarkably rare plant in Europe (cfr. Letter 38, Note 22). It has no relation to lucidus as classed by Quélet, does not have "colored spores", has little resemblance to his figure and may not be his plant excepting as to the specimen he sent Fries. I am told by Bresadola, however, that he has Polyporus gilvus from Quélet.

fumidiceps, United States, Atkinson. Unknown to me. (Cfr. page 389.)

fusco-badia, Philippines, Bresadola (mss.) as Trametes = Polyporus Patouillardii of Brazil. I have exactly same plant from Japan, G. Yamada. I do not know that Trametes fusco-badia was ever published, though specimen sent to me was marked "cotype".

fusco-cinereus, South America, Patouillard. Unknown to me. Compared to Polyporus adustus.

fuscolutescens, Europe, Fuckel = nodulosus it is stated.

fusco-pellis, Europe, Quélet = Polyporus quercinus teste Bresadola.

fusco-velutinus, United States, Patouillard = Polyporus cuticularis.

Garckeanus, India, Hennings = Polyporus nilgherriensis which is not much of an improvement as far as the name goes.

gogolensis, New Guinea, Hennings = Polyporus immaculatus, Henning's barbarous name, which he borrowed apparently from the native dialect, fortunately does not have to be used.

Gordoni, England, Berkeley, nomen nudum and type a remmant. Probably Polyporus brumalis.

gossypinus, Europe, Léveillé. The type a little frustule from Mougeat, too poor for comment, is at Paris. Except the discoverer I believe no one had ever found it, but Berkeley found something that he called it on gorse, hence it is carried in the English text books. I know no species in Europe with "white cottony pileus" and believe it to be principally imagination.

gratus, India, Berkeley. Based on one collection which is white, thin, with allantoid spores and seems same as Polyporus floriformis of this pamphlet.

griseus, Java, Bresadola. Seems to me on comparison to be same as Polyporus ostreiformis. Griseus would be a better name for it, if it were not preoccupied.

guadalupensis, West Indies, Léveillé. Only known from the type at Paris and I think will prove in time a good species. It is quite close to Polyporus anebus which I believe does not occur in the American tropics. It has same shape, general appearance. etc., but the context is more brown, surface smoother, pore mouths darker. It must be rare for I did not note it in the abundant West Indian material at New York. Murrill refers it to Polyporus supinus, an obvious mistake. Compare micromegas.

guaitecasensis, Chile, Hennings. It has been recently referred to Berkeleyi I believe, and when I examined the type some years ago I noted that it had same flesh, pores and spores as Berkeleyi. As it was described as "dimidiate" and grew "in truncis putridis" I could not see how it could be Berkeleyi, however, unless the name is a mistake or unless the South American plant has a different habit from the North American plant, for it never grows on "trunks" in the United States. The type I saw was only fragments and nothing could be told as to how it grew, but "eine gross exampler" was stated to be in the museum which I did not find.

guttulatus, United States, Peck, change of maculatus and = alutaceus of Europe.

haematinus, India, Berk, nomen nudum and name even not found at Kew.

Halesiae, United States, Berkeley = Polyporus adustus.

Hausmanni, Europe, Fries. It is supposed to be same as hispidus. No type exists in Fries' herbarium, (it came from Tyrol). It seems from description to be hispidus excepting that Polyporus hispidus is not "pale within".

havannensis, Cuba, Berkeley. Pileus (2 x 4 x ½ cm.) with smooth reddish brown surface (Hazel). Context thin. Pores small dark, isabelline color. Known only from type at Kew, a single partial specimen. Determinations at New York are thick specimens of Polyporus subfulvus belonging to the section Petaloides, and no connection with this. The plant could be recognized I believe, on comparison with type. It will probably go in Section 95. I believe that Polyporus valenzuelianus of Montagne's determinations from Waddell, Brazil, (not type) to be this plant.

Helix, United States, Hennings as var. of volvatus. It is the usual thing.

hemileucus, Cuba, Berkeley. When described six specimens are cited which are referable to three different species, viz., Trametes cubensis, Polyporus modestus,

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and Polyporus valenzuelianus. In sense of Ellis it is the latter. The description covers the former only, for neither of the latter have "white pores".

Henningsii, Europe, Bresadola. Dr. Hennings found in the old Botanical Garden at Berlin, large quantities of a Polyporus that assumed all kinds of shapes. It was pure white, thin, and had large pores. Sometimes resupinate, with thick subiculum, and rhizomorphal cords, other pleuropodial or even mesopodial. The pileate form was referred to Polyporus lacteus by Bresadola also called a new species Polyporus Hennsingsii. I have an impression that it has since been held to be a pileate form of Poria Vaillantii. (Cfr pulchella.)

hepatites, South America, Berekeley. Type rubbish.

Herbergii, Europe, Rostkovius. Among the many, mostly badly colored and inaccurately named figures that were issued in the pocket edition of the Flora of Germany (Sturm) about eighty years ago, was one named as above. The figure is rather thin, but represents apparently sessile Polyporus Schweinitzii. Fries referred it to Polyporus spongia, which is same thing, and Saccardo gives it as a synonym for Polyporus spongia and on the same page as a valid species. The incident was almost forgotten in Europe except in England where the tradition still persists. Berkeley in 1878 referred to Polyporus Herbergii a specimen in the Edinburg Fungus show, and subsequent English mycologists frequently find it, their specimens begin Polyporus Schweinitzii.

heteroclitus, England, Bolton. All that is known about it is Bolton's figure (t. 164). While it is not a good figure, I do not question it is Polyporus cristatus, a rare plant in England. Berkeley never found any plant that he referred to this figure. Fries' account was based solely on Bolton's figure. Polyporus heteroclitus is still carried in all the modern traditional works of England, though not a recent mycologist has ever found a plant that could possibly be referred to it, except Cooke who did here refer Polyporus rufescens which has not the slightest resemblance to Bolton's figure.

hinnuleus, Brazil, Berkeley. It is endorsed now as being Polyporus rheicolor. That looks right to me.

hirsutus, Juggle, Murrill. No one has known Polyporus hispidus by any other name for so many years, and Murrill's juggle was so similar, that it almost passed unnoticed.

hispidans, Australia, Cooke. Based on a single specimen, unknown to me, but badly named and badly classified by Cooke. It is isabelline now but was no doubt a thin, white plant closely related to Polyporus Spraguei as to its surface which is not "hispid" but rugulose granular. If ever found again it should be renamed. I think no one is obligated to perpetuate such misnomers.

Hobsoni, India, Berkeley = I believe Polyporus obtusus of the United States. Known only from the "type locality" though I have a specimen of Polyporus obtusus from Ceylon.

Hoehnelialus, Europe, Bresadola = Polyporus epileucus for me.

Hollandii, Africa, Massee = Polyporus colossus.

hololeucus, Australia, Kalchbrenner = Polyporus Eucalyptorum, type at Berlin. In sense of Cooke who placed it in Polystictus (sic) it is Trametes lactinea.

holosclerus, Ceylon, Berkeley = Polyporus gilvus, the reddish form called also Polyporus carneo-fulvus.

Holtermanni, Java, Saccardo, change of polymorphus (q. v.) = Polyporus zonalis probably.

homalopilus, Cuba, Saccardo. Change of omalopilus which is Polyporus gilvus.

hypocitrinus, Brazil, Berkeley. Type two little frustules from which nothing can be told.

hypococcineus, United States, Berkeley = Polyporus croceus. Berkeley published that it was same as Polyporus Pilotae which is same as Polyporus croceus. No specimen in Berkeley's herbarium but specimens can be found at Upsala and Paris of Berkeley's naming.

hypomelanus. New Zealand, Cooke. Known only from the type a single specimen. It is rigid, with a thin, reddish brown, smooth crust, hardly any context which appears to be white, and small rigid pores, the tissue pale but the mouths black. The general style of the plant is like Polyporus elegans but the specimen has no stipe but had a dorsal sessile attachment. I hardly feel that a species should be maintained on a single specimen which appears to be a sessile example of some plant of the Melanopus section.

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imberbis, Europe, Bulliard. This was dug up by Quélet and stated to be same as Polyporus salignus. If it is true and we can not say that it is not, Bulliard could not do much boasting of the accuracy of his figure t. 445, f. 2, which has more resemblance a lichen than to Polyporus salignus.

impolitus, Central America, Fries. No type exists.

inamoenus, India, Montagne = Polyporus gilvus, the thick, indurated form. We use it as a convenient designation for this form but do not consider it as distinct, even as a form.

inconspicuus, South America, Miquel. Unknown to me. Alleged to be same as zonalis.

induratus, Africa, Berkeley. Type destroyed.

inflatus, United States, Ellis = Polyporus volvatus.

inonotus, Europe, Karsten = Polyporus rheades teste Bresadola. No specimen seen by me.

intercalaris, Brazil, Berkeley. Type is the merest rubbish. Endorsed now as being Polystictus versatilis, but I would as soon believe it is a new species. It is nothing.

investiens, Europe, Desmazières. He sent a specimen under this name to Persoon who endorsed it as "Bol. abietinus, De Cand. not Dicks. and Pers." It is Polyporus amorphus but shows that Persoon knew the plant before Fries named it.

Irpex, Europe, Schulzer. Changed by Fries to Polyporus Schulzeri and only known from drawing in Fries' collection and if I am not mistaken that was from Kalchbrenner. It is supposed now to be the same as obtusus of the United States.

isabellinus, United States, Schweinitz = unknown. No specimen exists.

isidioides, Africa, Berkeley = Polyporus scruposus, form of Polyporus gilvus.

Jamaicensis, Jamaica, Murrill. Based on one collection which I should refer to thick form ot Polyporus cuticularis.

Jelinekii, Tahiti, Reichards = Polyporus zonalis teste Bresadola. Type at Wien not seen by me.

Karstenii, Europe, Saccardo, change of Polyporus simulans q. v.

Keithii, England, Berkeley. Type a little piece about size of a finger nail. It is one of the two species that turn red in drying, viz., either Polyporus fragilis or small frustule of Polyporus mollis.

Kerensis, Africa, Passerini. Specimens unknown to me. Description reads like Polyporus ochroleucus which occurs in Africa.

Kymathodes, Europe, Rostkovius, t. 24 seems from the picture to be Polyporus amorphus. Fries maintained it as a species distinguished from amorphus by its gray pores, and gave a picture. Such a plant is not known now.

Laburnum, Europe, Opiz. Nomen nudum.

labyrinthicus, United States, Fries, name change of Sistotrema spongiosum of Schweinitz. No type exists either at Philadelphia, Upsala or Kew but there is no doubt in my mind that it is the curious plant now known as Polyporus obtusus. It may have been Polyporus delectans. Fries and Berkeley both had specimens and both commented on this unusual species, but neither preserved specimens.

Lawrencii, Tasmania, Berkeley = Polyporus gilvus.

laxus, Europe, Orth. Unknown to me. Reads like it might be Polyporus obtusus.

leptopilus, Java, Lévillié. No type found at Leiden. Cfr. Letter 36.

leucocreas, Australia, Cooke = Polyporus Eucalyptorum. Cooke described it as having flesh "suberose firm and tough" (sic). In his specimens the flesh is remarkable for its very soft, crumbly and fragile nature, more pronounced than in any other species known to me.

Léveillei, Africa, Patouillard = Polyporus ochroleucus, old, effete.

libocedrus, United States, Von Schrenk. This is the same as Polyporus amarus and a prior name. No type exists and we have used the latter (and later) name for reasons stated on page 330.

ligneus, Central America, Murrill as Trametes. This appears the same plant to me on comparison as Polyporus nivosellus and both I believe to be thick specimen of Polyporus Calkinsii.

Lindheimeri, Texas, Berkeley = Polyporus adustus "known only from the type locality."

Ludovicianus, United States, Patouillard = Polyporus cuticularis.

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luridescens, Jamaica, Murrill. Based on old weathered and discolored specimens of Polyporus obtusus.

luteo-cinereus, Europe, Britzelmayr. Unknown. Said to have white context and pores, and colored spores. Noteworthy if true, but probably not ture. Britzelmayr was a great discoverer of things that probably do not exist.

luteiporus, Europe, Opiz. Nomen nudum.

Macouni, United States, Peck. No type exists. Given in Saccardo as a variety of Polyporus dichrous which seems to have been a bad guess unless Polyporus dichrous has changed its spore shape since. Instead of being "globose" they are "rod shape" in Polyporus dichrous.

MacOwani, Africa, Kalchbrenner = Polyporus adustus. Type at Kew.

macroporus, Java, Léveillé. No type known, nor any plant known that is "comparable to Polyporus hispidus but covered with a thick, hard scaly crust."

macroporus, Europe, Britzelmayr. Unknown. Carton not found by me.

maculatus, United States, Peck. Changed to Polyporus guttulatus but is a synonym for Polyporus alutaceus of Europe.

Marianus, Pacific Islands, Persoon. The type a single specimen in poor condition is at Paris. I believe it to be Polyporus anebus of this pamphlet and if true, a very much earlier name for it. The specimen was glued to paper so that the surface does not show. It may be the red stained form called Polyporus bicolor.

maritimus, Europe, Quélet. Unknown to any one I think. Quélet sent Fries a specimen but there is nothing left of it now. Said to have fusiform spores 10-12 mic. long. General description reads something like alutaceus excepting as to spores.

Martellii, Europe, Bresadola. A form of Polyporus resinaceus.

Mexicanus, (bis) Mexico, Patouillard. Unknown to me. Compared to lacteus.

micromegas, Cuba, Montagne. Types small and unsatisfactory are at Paris. I think they are same as Polyporus guadelupensis. They have been referred to Polyporus zonalis but are different in my opinion.

microscopicus, Java, Junghuhn. No type found by me.

microstomus, Cuba, Berkeley = Polyporus concrescens.

Mollerianus, Africa, Saccardo. This teste Bresadola is a stipitate form of Polyporus vinosus. It seems to occur in Africa only. At Kew is a specimen which is exactly Polyporus vinosus in every character excepting it is reduced to the base to a short stipe. We use the name (page 342) as a form name.

mollicomus, Europe, Britzelmayr. The description reads like Polyporus borealis. The cartoon I did not locate. His cartoon of Polyporus borealis has not the most remote resemblance to Polyporus borealis, hence you can draw your own conclusions, which is more than you can do as to most of the crude sketches of this modern European "scientist."

mollissimus, China, Patouillard. Unknown to me. Compared to Polyporus spumeus.

molluscus, Europe, Karsten. Unknown. From description appears to be the white form of Polyporus amorphus.

monochrous, Cuba, Berkeley = Polyporus capucinus. This was a mss. name for Wright No. 158 which when published was referred to Polyporus chrysites.

morosus, Europe, Kalchbrenner = Polyporus benzoinus. Specimens de Thum 713 and Rabenhorst 1605 in several museums. In Austria it is said to be "rarissime" which may explain why Kalchbrenner discovered it to be a "new species".

nauseosus, West Indies, Patouillard. Not seen by me. Said to be a white species with viscid pileus and foetid odor. Viscid Polyporus are rare. Murrill who has skimmed over Patouillard's herbarium, merely informs us that it is a "doubtful species" but what the "doubt" is about he does not state.

nidulans, Europe, Fries = Polyporus rutilans. The Friesian name has been generally used in America. Both are legal now, so you can take your choice. If Blytt's specimen of "rutilans Fries in Litt." is correct, Fries had no conception of Persoon's species, and as Persoon gave such a fine illustration of Polyporus rutilans there was not a bit of excuse for Fries to rename it.

nigro-purpurascens, United States, Schweinitz = Polyporus dichrous as announced some fifty-odd years ago.

nitidulus, Japan, Berkeley. Type little remnants from which nothing can

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be told. There are also cotype remnants at Paris. I judge the plant is concrescens or close.

niveus, Java, Junghuhn. Type at Leidem is undeterminable, a white Poria, or more probably the resupinate part of some Polyporus.

niveus, Saccardo, Vol. 6, p. 118 is a lapsus for Polyporus nidulans which is Polypotus rutilans.

nivosellus, Cuba, Murrill = for me a thick specimen of Polyporus Calkinsii.

Nonkahivensis, China, Patouillard. Based on two little frustules referred recently to Polyporus lingua but not in the sense of Montagne I think.

Notarisii, Europe, Berkeley, nomen nudum. Not "described" and no specimen found by me.

obducens, British America, Berkeley. This is known from a single specimen in Hooker's herbarium from British America about eighty years ago. It is thin and reminds me of a piece of parchment paper. Recently it has been endorsed as a "prior name" for Polyporus osseus. It is quite doubtful to me, and I should not be disposed to disturb Polyporus osseus on such evidence. Fortunately, the endorsement was made after Murrill's visit to Kew, or he would without doubt have had a juggle for Polyporus osseus.

oblinitus, Mauritius, Cooke = Polyporus bicolor. It is also = Polyporus sanguinarius and the *same collection.*

obockensis, Africa, Patouillard = Polyporus colossus. As for many years the type of colossus in a jar at Upsala was unknown, the plant became fairly well known under Patouillard's name. We would be in favor of continuing it, but we are not partial to these latinized Ethiopian dialects.

obvolutus, United States, Cooke = Polyporus volvatus.

ochraceo-cinereus, Europe, Britzelmayr. So little can be told from Britzelmayr's work that it is hardly worth listing the name.

omalopilus, Cuba, Montagne (changed by Saccardo to homalopilus). It is Polyporus gilvus.

oroleucus, Java, Patouillard = Polyporus tropicus from same locality.

ostreatus, Brazil, Léveillé = Trametes cubensis. Type at Paris.

pachycheiles, United States, Ellis. Probably equals cerifluus or crispellus. These thin white species with reddish tendency are not all clear. It is not, however, semisupinus as stated, which has no reddish tendency.

pachylus, British America, Cooke. A remnant, probably resupinate part of Polystictus biformis.

pachyotis, South America, Spegazzini. Only known to me from Rev. Rick's determinations which are same for me as Polyporus Chaffangeoni.

pallescens, Europe, Fries = Polyporus fumosus it is thought. Specimens I have received from correspondents under this name are Polyporus fumosus.

pallido-cervinus, United States, Schweinitz. The little frustule in Schweinitz's herbarium is Polyporus rutilans. In the sense of Morgan it was Trametes malicola, and in the sense of Berkeley (from Cuba) it was Polystictus biformis.

pallido-micans, Europe, Britzelmayr. Another name only.

Palmarum, Cuba, Murrill = Polyporus Calkinsii.

paluster, United States, Berkeley. The type is a small specimen in very poor condition and its identity not sure but I think it is Polyporus albellus which, however, has no right to grow on pine. It has a thin but distinct crust. In sense of Murrill Polyporus paluster is Polyporus albidus a plant with quite a different surface.

paradoxus, Europe, Fries. No specimen known. The description appears to me same as Polyporus Soloniensis (cfr. Letter 42) which I am disposed to think is a lapsus of Polyporus sulphureus.

parvulus, Central America, Murrill. Based on two small specimens in Ellis' herbarium which I would refer to subsessile Polyporus lucidus as Ellis did.

pelleporus, Europe, Sowerby t. 230 = Polyporus fumosus.

pellitus, Europe, Karsten. Unknown. Reads like Polyporus osseus.

perplexus, United States, Peck. No specimen exists. Nothing known about it excepting Peck thought at the time he named it, that it was different from the common Polyporus cuticularis which he well knew at the time. Murrill who never saw it, takes it as the name for Polyporus cuticularis which is rather far fetched under these circumstances.

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persicinus, United States, Berkeley. This may in time prove to be a good species, but at present is known only from the type still at Kew. It appears to have been three or four inches in diameter, sessile. The flesh was no doubt rosy at first for the name evidently refers to the color. It is *very soft and crumbly.* The pores are medium, and now fuliginous, probably changed color in drying. The plant is sessile, and grew flat against the host. Murrill's creative power in providing it with a "stem central, thick, conical, dark purple, 5 cm. long, 4-8 cm. thick" which was a pure invention and to me a source of much amusement. The plant is unknown except from this slice at Kew which came from Ravenel. I would class it in Section 81.

pertusa, Africa, Fries (as Trametes) = Polyporus gilvus cotype at Kew.

Pilotae, Unites States, Schweinitz. It has only recently been demonstrated that this is the same as Polyporus croceus of Europe.

Pini-canadensis, United States, Schweinitz. No specimen mounted in his collection. There is a little frustule at Kew which on comparison seems to be Polyporus croceus. Schweinitz' description, host, habits, color, and texture all disagree with Polyporus croceus and there is some error evidently. I know no plant to agree with Schweinitz' description.

Pini-silvestris, Europe, Allescher = Polyporus benzoinus as to description and also specimen so named.

plumbeus, West Indies, Léveillé = Polyporus zonalis. Type at Paris.

polymorphus, Europe, Rostkovius, t. 56 = Polyporus nodulosus and not a bad picture of it.

polymorphus, Java Holtermann. From the imperfect description and figure appears to be Polyporus zonalis. It was changed to Polyporus Holtermanni by Saccardo.

polytropus, Ceylon, Berkeley ("Fomes" for Cooke) = Polyporus anebus.

pseudo-igniarius, Europe, Bulliard. A very good picture of Polyporus dryadeus. The name is sometimes used as a juggle.

pseudoradiatus, South America, Patouillard = Polyporus gilvoides which is a much better name for it.

Ptychogaster, Europe, Ludwig. Ludwig states that Ptychogaster albus is a conidial form of "its own proper species" which he names as above. Fries and others think it a conidial form of Polyporus borealis. I only know that Ptychogaster albus is not rare in Sweden, that Polyporus borealis is very common in Sweden, and that "Polyporus Ptychogaster Ludwig" has never been found in Sweden by the oldest inhabitant.

puberula, United States, Berkeley (as Daedalea). The type all known is Polyporus salignus. Murrill uses it as a name change for Polyporus fragrans but there is no evidence either on the label or publication that it is fragrant.

pulchella, Europe, Saccardo. Found in a Botanical Garden. Picture is surely same thing which Hennings found so abundantly at Berlin and which was called Polyporus Henningsii (q. v.)

pura, Cuba, Berkeley (as Trametes) = Polyporus immaculatus. The plant has no suggestion of being a "Trametes".

purpureo-fuscus, United States, Cooke = Polyporus gilvus.

pusillus, Mexico, Murrill = The name being preoccupied was changed by McGinty to Polyporus pygmaeus.

Ramosii, Philippines, Murrill. Has same color, setae and spores as Polyporus licnoides. Specimens are at Berlin and I have a cotype. How it differs from licnoides I can not note.

repandus, Africa, Patouillard. Unknown to me. The description seems same as secernibilis of Ceylon.

resinosus, Europe, Schrader. It is a guess at the best but I believe it is the plant called Fomes laccatus in my Fomes pamphlet. Quélet I think had it right. Bresadola interprets it as being Fomes pinicola. Fries and in sense of American custom it is Polyporus fuscus of this pamphlet which is not "resinous" and has no resemblance to the plant that Schrader had, if either Bresadola, Quélet or myself has rightly guessed it.

reticulata, Brazil, Fries (as Auricularia) is said to be a synonym for Polyporus conchoides (cfr. Sacc, vol. 6, p. 403). I can not say to the contrary but I hardly believe it. I never looked up the specimen at Upsala if it exists.

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rhinocephalus, Tasmania, Berkeley. Type all known appears to be Polyporus fumosus.

rhodophaeus, Java, Léveillé. It was misdescribed by Léveillé and not recognized by Bresadola when he worked over the Léveillé specimens. I hunted up the type from Junghuhn's labeling "Rosa mala" and found that it had been endorsed Polyporus semilaccatus.

ribicola, Europe, Karsten. Little frustules are at Berlin. I did not recognize them as anything I knew. It seems to be a Polyporus with colored context. I do not believe it is a form of rutilans however, as somebody states.

Rickii, Brazil, Patouillard, see page 357.

roseo-fuscus, Brazil, Romell = Trametes cupreo-roseus.

roseo-maculatus, Europe, Karsten. Unknown to me but from description it is the flesh colored-pore form of Polyporus amorphus.

rubiginosus, Europe, Schrader. This old vague record has been variously interpreted. Fries (late date) as a synonym for Polyporus fuscus of this pamphlet. Fries (at an early date) as Polyporus fissilis of this pamphlet. Fries' specimen at Kew is Polyporus cuticularis. Bresadola Fungus Kmet. as Fomes applanatus, which is probably correct. The "farina rubiginosa" of the pileus is no doubt the spore deposit that often mysteriously covers the top of the pileus of Fomes applanatus.

rubiginosus, Tasmania, Berkeley. This was changed by Berkeley to Polyporus Lawrencii. It is Polyporus gilvus.

rufo-albus, Africa, Bresadola (as Ptychogaster). Type is at Berlin. I think it is a normal Ganodermus close to Oerstedii. Spores are both truncate (normal) and globose (conidial) but I think the presence of conidial spores does not make it a Ptychogaster.

rufo-pictus, "Cuba" Cooke. This was one of Berkeley's left-overs, (probably I judge from the writing on the label from Ceylon) which Cooke dug up and published. It is Polyporus zonalis. Berkeley referred many specimens to Polyporus zonalis, and why he did not recognize this I can not say. Probably he did (as he did not publish it) but forgot to change his label.

rugulosus, Java, Léveillé. No type found by me at Leiden and none exists at Paris. It is considered same as Polyporus zonalis. Specimens I have noted so named are mostly Polyporus rigidus, the unzoned form of Polyporus zonalis.

Saccardoi, Europe, Cooke. Change of Polyporus sericellus (bis) which being Polyporus rufescens was not worth changing.

sanguinarius, Mauritius, Klotzsch = Polyporus bicolor. The type is at Upsala. At Kew the cotype simply "No. 13" by Klotzsch was endorsed by Berkeley "oblinitus. I have not ventured to publish it." Cooke not only ventured to publish it, but put it in Fomes (sic). The pileus has a dark red stain but nothing to suggest "blood" and Junghuhn's name bicolor is much better for it. It must not be confused with Daedalea sanguinea of the same author, which is Trametes Persoonii of the tropics. Berkeley usually employed Trametes sanguinea as the name for the latter plant. We use the name on page 338 in a very close but not exactly same sense as Klotzsch, in order to avoid inventing a new name.

Sarrazini, Europe, Schulzer. Judging from the figure of Lucand (No. 99 as vulpinus) which Schulzer states to represent his "species" the plant is probably Polystictus pubescens or velutinus.

Satpoorensis, India, De Beck. The illustration is an excellent picture of Polystictus leoninus. Those who discover "new species" of such *common things* ought not to give good pictures of them. The safest way is to "describe" them and then chuck the specimen in the waste basket.

scanicus, Europe, Fries = Polyporus adustus. Type at Kew.

Schulzeri, Europe, Fries. Change by Fries of Polyporus Irpex which is a privilege that our learned law makers only allow to Mr. Fries. Any one else it is illegal. No specimens known to Fries but the drawing is still in his collections. The plant is probably same as Polyporus obtusus.

scrobiculatus, Europe, Karsten. Description reads like radiatus. Spores read like cuticularis. Unknown what it was.

semidigitaliformis, Australia, Berkeley. Type too poor to comment.

semipileatus, United States, Peck = Polyporus semisupinus of this pamphlet.

sensibilis, N. W. United States, Murrill = Polyporus fragilis.

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Sequoiae, United States, Murrill = Polyporus resinaceus.

sericellus, Ceylon, Lèveillè. No type known.

serpens, Rawak, Persoon. The types are at Paris. It is the same as anebus of this pamphlet and a very much earlier name for it. Persoon gave a figure consisting of numerous specimens growing imbricate along a stick. This is a very unusual growth and misleading as to the general habits of the plant. Persoon also called the plant Polyporus Marianus. Although a frequent plant in the East, no one has ever referred specimens to Persoon's name and the plant has generally been called by Berkeley's name Polyporus anebus. Polyporus serpens (type) has no indication of the red stain that often comes on the pileus of this species, then it becomes Polyporus bicolor.

silaceus, Europe, Wettstein. No specimen known. The description suggests Polyporus gilvus.

simulans, "Cuba," Cooke. It is a thin specimen of Polyporus fumosus. It was one of Berkeley's left overs that Cooke dug up, and supplied the locality. The original looks to me like Thwaite's label and was probably from Ceylon. At least there is nothing to connect it with "Cuba" except Cooke's endorsement. Murrill includes it in his monographic work of "American species" and finding another name simulans the same year changes it to Polyporus subsimulans.

simulans, Europe, Karsten. Unknown. Description points to Polyporus adustus. Saccardo changed simulans Karsten to Polyporus Karstenii because Berkeley had a Polyporus simulans, and then Murrill comes along and changes Polyporus simulans Berkeley to Polyporus subsimulans because Karsten has a Polyporus simulans. It seems to be a good rule. It works both ways at least.

Smallii, Florida, Murrill = Polyporus mollis.

sordidissimus, Brazil, Spegazzini. No specimen seen. Description suggests Polyporus supinus.

sordidus, United States, Cooke = Polyporus Spraguei.

Spermolepidis, New Caledonia, Patouillard = Polyporus Encalyptorum. The crust is white and was originally described us as dark as are many specimens I have seen but I think that is due to age.

spiculifer, Australia, Cooke. = Polyporus pelliculosus. It is a thicker plant and the tomentum is more strongly collected into nodules but surely the same species.

Splitgerberi, South America, Montagne = Polyporus rheicolor which is a much better name for it.

spongiosum, United States, Schweinitz. No specimen exists. Fries comments on this strange plant and changed the name to Polyporus labyrinthicus. While in absence of specimens nothing positive can be stated there is no doubt in my mind that this was the plant now known as Polyporus obtusus.

squamulosus, Africa, Bresadola, = Polyporus tephroleucus for me. I find the spores allantoid 1 x 4, not subglobose, 7 x 8 as stated, and the squamules shown on the figure Bull. Soc. Myc. France, Vol. 6, t. 5, are in faint evidence on the type.

stabulorum, China, Patouillard. Not seen by me. Reads like Polyporus Hookerii of this pamphlet.

stereiforme, South America, Hennings as form of Polyporus conchoides. It is a little thicker only than the usual plant which is all the difference.

stillativus, Europe, Britzelmayr. His crude cartoon, his name and the spores all point to it being Polyporus fuscus.

strumosus, Africa, Fries. My notes on the type are to the effect that it has dark hymenium and was too close to adustus. I have since seen at Bruxelles a specimen marked "typical" which was quite different from my idea, having *gilvous context.* Not having seen the type since I can not say.

stuposus, South America, Montagne. Material known a single half specimen less than one cm. is inadequate to base a species on. It is quite close if not same as Polyporus concrescens.

subchioneus, Philippines, Murrill. Subcaesius would have been a better name for it, as the dried plant has similar color and spores to Polyporus caesius. It is much thinner (3 mm.) than the European plant and of course we do not know that it turns blue when fresh, but on the evidence of what is known about it I should refer it to Polyporus caesius. It was distributed scantily and all I have seen are at Berlin.

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subcinereus, British America, Berkeley = Polyporus adustus as acknowledged by Berkeley. Specimens so labled are found in Fries' herbarium and at Paris.

suberis, Africa, Patouillard. Unknown to me.

suberosus, Europe, Linnaeus. An old supposed synonym for Polyporus betulinus sometimes used as a juggle.

subgilvus, South America, Spegazzini = Polyporus gilvus sans "sub". Specimen at Paris.

sublilacinus, Southern United States, Ellis. Based on a single specimen from Langlois. It is same as the common Polyporus gilvus with slightly different textures, tending towards Polyporus licnoides. It is a question if Polyporus licnoides is other than a form of Polyporus gilvus and surely there is no room for a "species" between them that is based on a single specimen and "known only from the type locality."

subluteus, Canada, Ellis. I have some cotype material of this but it has never come out very distinctly as a species for me.

subpictilis, New Guinea, Hennings. Referred by Bresadola to Polyporus bicolor. The type at Berlin is quite thin to be bicolor, nor is it spotted red as bicolor typically is, still it has same color context and may be a thin form. I can not say to the contrary.

subpruinatus, Java, Bresadola = Polyporus anebus, for me.

subrubidus, Philippines, Murrill = Polyporus bicolor.

subsericellus, Europe, Karsten. Unknown.

subsimulans, Cuba, Murrill. This was merely a name change of simulans which Cooke alleged to come from Cuba, but probably came from Ceylon. Simulans being a duplicate was changed by Murrill to subsimulans where he included this Ceylonese (?) plant in his "North American" Flora. Had he called it Polyporus fumosus it would not have been far from the truth.

subtropicalis, South America, Spegazzini = Polyporus licnoides, typical in everything excepting a little thicker.

sulphuratus, Mexico, Fries = Polyporus rheicolor of this pamphlet, = also Polyporus Splitgerberi and at Upsala where the two species can be compared they are same thing. Why Fries renamed it I do not know as he had Montagne's specimen to compare. The flesh is orange yellow rather than sulphur yellow.

sulphureo-pulverulentus, Siberia, Karsten. Nothing is known about it (fortunately).

surinamensis, South America, Miquel. No type known to me though at Paris are specimens from Surinam so determined by Léveillé, and may be cotypes. They are the unzoned form of Polyporus zonalis called also by Léveillé Polyporus rigidus.

Symphyton, United States, Schweinitz. No specimen preserved. The description indicates that it was Polystictus biformis, a common American species, not otherwise accounted for in Schweinitz' record.

tamaricis, Europe, Patouillard = Polyporus rheades growing on tamarix. This tamarix form has only recently been recognized by me as being same as Polyporus rheades. Bresadola figured it as Polyporus rheades, afterwards Patouillard thought it was different and named it Polyporus tamaricis. Bresadola accepts this correction and I have always thought it was correct until I began to compare the different species with colored spores to find out the exact difference between them. Then I could not find any as to Polyporus tamaricis and Polyporus rheades at least, and I do not think there is any excepting the host.

terebrans, Cuba, Berkeley. Based on a single specimen same context and color as Polyporus fumosus and I would prefer to so refer it with doubt than to try to maintain a species on it.

testaceus, Europe, Fries. Pileus suberose, sordid testaceus, zonate within. Pores minute, white. On Poplar. Unknown to me. Evidently close to alutaceus and I suspect the frondose wood form of same thing.

Testudo, Australia, Berkeley = Polyporus durus. The type at the British Museum.

texanus, Texas, Murrill. Based on young specimen of Polyporus corruscans growing on mesquite. I have seen three collections, the type, and also from Long and Von Schrenk all on mesquite.

Thelephoroides, South America, Hooker = Polyporus conchoides, and an earlier name for it, when those sacred principles of priority get into good working order. No one has yet juggled it however.

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tiliophila, United States, Murrill. Based on a thick specimen of Polyporus alutaceus.

tomentoso-quercinus, United States, Johnson. Amateur work of which no type exists but from the description no doubt that Murrill has correctly referred it to Polyporus obtusus.

Torreyi, United States, Gerard as var. of Polyporus volvatus. Based on specimens abnormally stiped.

trachodes, Java, Léveillé = Polyporus scruposus which is a form of Polyporus gilvus.

trichocoma, Tahiti, Fries. No type exists.

tristis, Europe, Persoon. No type in Persoon's herbarium. Fries thought it might be abietinus, but description seems to me to point to the large pored form of Polyporus adustus, viz., Polyporus crispus.

tristis, Europe, Roumeguére as Trametes (sic) is the common Polyporus adustus

tristis, Java, Léveillé. No type found by me = Polyporus vinosus it is stated

tumidus, Africa, Bresadola. Unknown to me. It belongs to section 103 which has now more named species than it is practical to maintain. They are all very much alike.

tyrolensis, Europe, Saccardo. Change of Polyporus Schulzeri which is probably obtusus.

ufensis, Siberia, Karsten. Unknown to me and from description can not refer it to a section even.

undulatus, United States, Schweinitz. No specimen known.

ungulatus, Australia, Berkeley. Pileus sessile ungulate, broadly attached. Surface hard, smooth, dull, no distinct crust. Slightly adustus. Flesh white, hard. Pores medium, adustus (now). Spore? globose, 4-5 mic. Known only from the type at Kew. A single collection. The pores of the specimen grew in irregular areas of growth, starting at different levels and growing different lengths, but I do not know but that is accidental in this specimen. The general nature and color of the pores are that of Polyporus fumosus and I have a feeling that it is an aberrant form.

unguliformis, Philippines, Murrill = Polyporus immaculatus, Murrill's name is the fifth that the plant has had.

unicolor, United States, Schweinitz. The specimen in Schweinitz' herbarium is Polyporus obtusus, as has long been known, but the specimen does not agree with the description and it is far more probable that Schweinitz knew Polyporus obtusus as Sistotrema spongiosum changed by Fries to Polyporus labyrinthicus.

venetus, Europe, Saccardo. Unknown. Something growing in a cave and no doubt an abnormality.

verecundus, Cooke, Berkeley = Polyporus immaculatus of same author, that is, as to the probable type. All specimens are in Cooke's writing, hence this "type" is of doubtful authority.

vermiculus, Europe, Veulliot. Seems from description to be Polyporus mollis.

virginii-Cuboni, Brazil, McGinty. Change of armeniacus because the name was preoccupied. However, as the original turns out to be the common Polyporus amorphus, the occupation was only temporary, and the change was unnecessary.

vulneratus, Java, Léveillé = Polyporus bicolor.

vulpinus, Europe, Fries = The poplar form of Polyporus rheades. For full account and history, see page 362.

Weberianus, Samoa, Bresadola = Polyporus fruticum.

Weinmanni, Europe, Fries = Polyporus mollis. There is a cotype at Kew.

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ADDENDUM.

Further information regarding the following two species has come to hand since the preceding was in type.

POLYPORUS FUMIDICEPS.—I have received a specimen from Mr. L. Romell, Stockholm, having come to him from Schenectady, N. Y., and it was the first specimen I have gotten of the species. It is exactly the same as Polyporus tephroleucus to the eye, but differs in having ovate, transparent, guttulate spores, 3½ x 5. The spores of tephroleucus are allantoid, 1½ x 5. As the plants are so similar, I have gone over the spores of all my collection labeled Pol. tephroleucus and did not find any that were not correctly determined. All have allantoid spores. One must be on their guard, however, to distinguish fumidiceps from tephroleucus, for it is only a slight spore difference.

POLYPORUS AMYGDALINUS is one of the rare Southern species, known only from the old, discolored types at Kew. I was therefore particularly glad to receive a specimen which agrees with the original account, from R. P. Burke, Montgomery, Ala. We have more pleasure in getting an old species straight than we have in proposing a thousand so-called "new species."

Polyporus amygdalinus we would describe as follows:—Surface soft, dull, pale yellowish (or brownish now) with darker innate fibrils. Context soft, spongy, punky, light, pale yellow (Salmon buff). Pores and pore tissue white. Mouths small, round or irregular, white. Spores not found except small, globose, conidial spores.

This species is not in the body of this book as little could be told from the old, effete type at Kew. I would enter it in Section 87. The contrast of the white pore tissue and yellow flesh is a feature unknown to me in other species. Ravenel states it has an odor of bitter almonds when fresh, hence the name.

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INDEX AND ADVERTISEMENTS.

It is customary to append to the binomial representing the plant name more or less personal names. The name of the man who is supposed to have named the plant, or some of his friends, or the collector, or the name of some individual who arranged it in the genus, and usually guessed at it, and the jugglers are very fond of writing their own names after each name they concoct. We do not believe in all of this useless bid for notoriety. We think a binomial, a binomial alone, should represent a plant name. Nor do we believe that there will be any stability or permanency in plant names unless this plan is generally adopted.

For the benefit, however, of those who think that a plant should have an appendix to its name, we itemize in our index the name that should be added to it, being the name of the author who proposed the specific name, or in a few cases (where we are concerned) of the collector. The numbers in parenthesis indicate the section to which the plant belongs.

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